

EVIDENTIARY HEARING
BEFORE THE
CALIFORNIA ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:)	
)	
Application for Certification)	Docket No.
for the Morro Bay Power Plant)	00-AFC-12
Project)	
_____)	

DUKE ENERGY MORRO BAY POWER PLANT
1290 EMBARCADERO STREET
MORRO BAY, CALIFORNIA

MONDAY, NOVEMBER 4, 2002

9:02 a.m.

Reported by:
James A. Ramos
Contract No. 170-01-001

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

COMMITTEE MEMBERS PRESENT

William Keese, Presiding Member

James D. Boyd, Associate Member

HEARING OFFICER AND ADVISORS PRESENT

Gary Fay, Hearing Officer

STAFF AND CONSULTANTS PRESENT

Caryn Holmes, Staff Counsel

Marc Pryor, Project Manager

Richard Anderson

PUBLIC ADVISER

Marc Pryor, Acting Public Adviser

APPLICANT

Christopher T. Ellison, Attorney
Jeffery D. Harris, Attorney
Ellison, Schneider and Harris

Kevin R. Johnson, Director
Duke Energy North America

Thomas A. Campbell, Attorney
Linda S. Kuhn, Attorney
Campbell, George and Strong, LLP

Stephen L. Friant, Senior Management Consultant
Entrix

David L. Mayer, President
Tenera Environmental

Margaret Rosegay, Attorney
Pillsbury Winthrop, LLP

INTERVENORS

Robert Schultz, City Attorney
City of Morro Bay

Henriette Groot, President
Babak Naficy, Staff Attorney
Environmental Defense Center
Coastal Alliance on Plant Expansion

ALSO PRESENT

Tom Luster
California Coastal Commission (telephone)

Michael Thomas
Central Coast Regional Water Quality Control Board

Jeffrey Haltiner, Vice President
Kenneth M. Schwarz, Senior Associate
Philip Williams and Associates, Ltd.
Gregor M. Cailliet, Professor
Moss Landing Marine Laboratories
California State University
Central Coast Regional Water Quality Control Board
Consultants

John Barta
Planning Commissioner

Deborah Johnston, Environmental Scientist
California Department of Fish and Game

Jack McCurdy
Coastal Alliance on Plant Expansion

Colby Crotzer
City Council Member

Bill Newman

Peter Wagner
Sierra Club, Santa Lucia Chapter

Nelson Sullivan

Coleen and Eric Johnson

Mandy Davis

ALSO PRESENT

Jack Ellwanger
Pelican Network; Voices of the Wetlands

Tom Laurie
Coastal Alliance on Plant Expansion

Mr. and Mrs. John Smurda

Ellen Sturtz

Eric Johnson

Peter Risley

Nancy Ferraro

Richard Smith

Garry Johnson

David Nelson

Joan Carter

Todd Barnes

Linda Merrill

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P R O C E E D I N G S

9:02 a.m.

PRESIDING MEMBER KEESE: Good morning.

We are here once again for the final set of hearings on the application for certification of Duke Energy Morro Bay Power Plant project.

I'm Bill Keese, Chair of this Committee.

To my far right is Jim Boyd, Associate Member.

Our hearing today will be conducted by Mr. Gary Fay, our Hearing Officer.

I'm going to observe that we're here to discuss the habitat enhancement plan. We know that that issue touches a number of other issues that we've heard testimony on in this case. But we'd like to try to stay as close as we can to the habitat enhancement plan. So I'm going to ask Mr. Fay to try to see if he can keep the testimony on point and have us not stray too far from that point.

Mr. Fay.

HEARING OFFICER FAY: Thank you, Commissioner Keese. Good morning, everybody. Today's hearing was noticed three times in case you missed any of them. We apologize for the change in schedule. We had to make adjustments

1 for the Committee's availability and then for the
2 availability of some witnesses. So we have just
3 done our best to try to accommodate everybody.

4 There are copies of the notice entitled
5 second notice of rescheduled hearing. And some
6 copies are on the back table. I refer the
7 parties, in particular, to the table of dates and
8 events in the back, because it indicates the
9 proposed dates for the opening briefs on today's
10 events and reply briefs.

11 In addition on the back table is a
12 schedule, topic and witness schedule, one page
13 table that indicates the order that we intend to
14 follow today. I've discussed the timing available
15 with the parties and we hope that the parties will
16 respect that and try to keep to the time
17 allocations that we have.

18 Regardless of where we are in the
19 process we will take a break at 5:00 to
20 accommodate the public. I've told the Public
21 Adviser that she could put out the word that if
22 members of the public wanted to come and give
23 comment on the habitat enhancement plan, they
24 could do so at 5:00. So we will take time to hear
25 public comment at 5:00. And then, as necessary,

1 we'll continue the hearing tomorrow morning at
2 9:00 a.m.

3 Kathy Novak of Duke Energy has asked me
4 to make a few announcements. There is a sign-up
5 sheet outside the door, and you're asked to please
6 sign your name and write the number on your little
7 visitor card. This is for all of our protection
8 in case they had to evacuate the plant site, that
9 sort of thing. They can tell who is accounted
10 for. So, please be sure you've signed in and
11 written your name down.

12 The restrooms can be found in the door
13 that's 90 degrees from this door here. It's the
14 main entrance of the building, as you go out this
15 door, and then go to your left. You'll see signs
16 directing you to the mens and womens.

17 In addition, if there is, for any
18 reason, a plant alert, it would be a siren. And
19 when you hear the siren for a plant alert, secure
20 your work and proceed to the designated evacuation
21 staging area immediately. And in our case, that
22 is the parking lot that is out this door, right,
23 and right again, back towards the beach. It's
24 inside the gates, but it's probably where most of
25 you parked.

1 As the Commissioner stated, the purpose
2 of the hearing today, or purposes, are, first of
3 all, we're going to hear from the staff of the
4 Central Coast Regional Water Quality Control
5 Board. And they will bring us up to date on the
6 status of their staff draft for the NPDES permit
7 for Duke Energy on this project.

8 Then we'll move into the testimony on
9 the habitat enhancement plan. The record is
10 closed on all other matters in the case, including
11 environmental impacts of the project on the marine
12 environment. And we recognize that sometimes it's
13 difficult to explain your position without giving
14 a giving context, but we just want the parties to
15 be sensitive to the fact that we've already taken
16 evidence on the question of impacts and on many
17 other topics. So we're not going to be re-
18 litigating matters for which the record is already
19 closed.

20 The Public Adviser I don't believe is
21 available, but our Project Manager for the
22 Commission, Marc Pryor, is going to stand in for
23 now. Marc.

24 MR. PRYOR: Yes, if I may. I have
25 brought some, I have some extra blue cards for

1 public comment. I'll be in the back until Roberta
2 arrives. I also placed another sign-in sheet for
3 the Energy Commission Staff to be docketed. I'd
4 ask anybody who wants to sign up on that, do so.
5 Thank you.

6 HEARING OFFICER FAY: And if any of you
7 are new to our process, filling out a blue card
8 helps you and us because then we're sure that we
9 have your name before us and we can call on you to
10 give your comments.

11 I'm also informed that the Coastal
12 Commission is on line. Tom Luster, are you there?

13 MR. LUSTER: I'm here.

14 HEARING OFFICER FAY: Great. Welcome.

15 MR. LUSTER: Thank you.

16 HEARING OFFICER FAY: And Tom will be,
17 as he can, monitoring our hearing today. And,
18 Tom, you're welcome to comment at anytime, if you
19 wish to do so. Please try to get our attention.

20 MR. LUSTER: Okay, thank you very much.

21 HEARING OFFICER FAY: Other handouts on
22 the back table include a copy of the official
23 exhibit list. There are a few copies back there.
24 I think the parties all have them. It's a 28-page
25 document that goes up through exhibit 285.

1 In addition to that a separate document
2 is entitled, tentative supplement to the exhibit
3 list that begins with exhibit 286. None of the
4 exhibits on the tentative list have been entered
5 into evidence. But we anticipate that most of
6 them probably will be moved into evidence today.
7 We just simply prenumbered them for convenience
8 and the identification. Saves a little note-
9 taking as we go along. So you'll want to keep a
10 copy of that tentative exhibit list before you.

11 We also brought a few extra copies of
12 the draft NPDES permit that was sent to us by the
13 Regional Board. And there are some copies in
14 back, as well as extra copies of the notice and
15 today's agenda.

16 In terms of the timing, we will first
17 hear from the Regional Board. Imagine it will
18 take around 45 minutes for their presentation.

19 We will then give each of the parties
20 approximately 30 minutes to question the Regional
21 Board. I want to remind the parties that the
22 staff of the Regional Board is giving this
23 presentation today both to inform the Energy
24 Commission and the public where the staff is in
25 its development of its draft.

1 However, what they're presenting is not
2 official, it's not a document of the Regional
3 Board. And it is a draft that will go into an
4 eventual official decision of the Regional Board,
5 not of the Energy Commission.

6 So the Energy Commission will not be
7 deciding the questions in the draft permit.
8 Nevertheless, we are working in parallel in some
9 ways, and we do need to be informed of at least
10 what the status is of the Regional Board Staff.

11 As to the habitat enhancement program,
12 I've informed the parties that what I'd like to
13 do, and we've done this before, is give them a
14 total amount of time that they can budget as they
15 see fit. That would include all the time they use
16 for direct presentation and the time they use for
17 all cross-examination of all parties.

18 And we'd like the parties to keep in
19 mind that a budget of approximately three hours
20 total on that, and no more. That will allow us to
21 give everybody a fair opportunity to present their
22 case and to cross-examine the other parties.

23 Now, before we move to the Regional
24 Board, we've had a motion to strike filed by the
25 staff. And I'd like to ask Ms. Holmes if she

1 wants to address that. Is Ms. Holmes here?

2 Did we just lose our sound?

3 MR. SPEAKER: Yes.

4 HEARING OFFICER FAY: Let's go off the
5 record.

6 (Off the record.)

7 MS. HOLMES: Thank you. Staff filed a
8 motion to strike portions of Duke's testimony late
9 last week, specifically section 4 of the rebuttal
10 testimony to staff's supplement.

11 I had a chance to discuss this with Mr.
12 Ellison on Friday and I believe I'm accurately
13 characterizing an agreement that we reached that
14 would obviate the necessity of the Committee
15 ruling on the motion.

16 And that is that statements that would
17 be made by, I believe it's Ms. Rosegay, on legal
18 issues relating to what's required for 316(b)
19 compliance will not be taken as evidence, but will
20 be taken as statement of counsel.

21 Similarly with respect to issues that
22 were the subject of hearings in June regarding
23 factual issues, such as levels of impact, things
24 of that nature. We agreed that it would be
25 appropriate to not cite any --

1 (Pause.)

2 MS. HOLMES: Sorry, folks, that'll wake
3 you up. That's better.

4 With respect to the factual issues that
5 were addressed in the hearings in June I believe
6 what we agreed to was that none of the parties, or
7 at least Duke and between Duke and the staff we
8 would not cite any portion of the testimony that's
9 provided in this case in order to substantiate
10 those factual assertions.

11 I will check with Mr. Ellison to make
12 sure that I have accurately characterized what we
13 discussed last week.

14 HEARING OFFICER FAY: Mr. Ellison, any
15 comment?

16 MR. ELLISON: Yes. I think --

17 MS. HOLMES: You can stand up here if
18 you'd like.

19 (Pause.)

20 MR. ELLISON: I agree with Ms. Holmes'
21 characterization of our discussion on Friday. I
22 think we have agreed that with respect to all
23 parties, not just Duke, that discussion in the
24 testimony which I think all parties provided as
25 context, that addresses the issues dealt with in

1 the prior hearing, are not to be taken as new
2 evidence and will not be cited by Duke or the
3 staff. And we'd urge the Committee to order that
4 no other party can cite that as new evidence on
5 those issues, with respect to Ms. Rosegay's
6 presentation.

7 I would also say any other discussion of
8 the law. Again, I think parties have provided,
9 and not just Duke, but staff, as well as Duke,
10 have provided some discussion of the law to
11 provide the Committee with context. And we agree
12 that these discussions are just that, statements
13 of counsel. They're not to be taken as evidence.

14 I think this is a common issue in Energy
15 Commission proceedings, a discussion of LORS
16 compliance.

17 PRESIDING MEMBER KEESE: Speak loud.

18 MR. ELLISON: I think the discussion of
19 LORS compliance frequently involves some
20 discussion of legal issues. And I think we agree
21 on the principle that those statements of what the
22 law is are not evidence, they are simply legal
23 discussion that is best dealt with in the briefs,
24 but sometimes is important context in testimony.

25 HEARING OFFICER FAY: Okay. Thank you

1 for that. And I appreciate the parties working
2 this out among themselves so the Committee will
3 not rule on the motion since there seems to be no
4 reason to do so. Thank you, Ms. Holmes.

5 Now, I'd like to move to Mr. Thomas and
6 the Regional Board's presentation on the draft
7 NPDES permit.

8 MR. ELLISON: Actually, Mr. Fay, I do
9 have one other preliminary matter before we do
10 that.

11 HEARING OFFICER FAY: All right.

12 MR. ELLISON: I'm just going to proceed
13 unless --

14 MS. SPEAKER: If you speak into the
15 microphone -- going to the tape and to the
16 reporter.

17 MR. ELLISON: Okay. You can hear me?

18 This is just a minor clarification, I
19 believe. The Committee, in its first notice of
20 this hearing, included certain statements about
21 issues that you wanted to see addressed in this
22 hearing. Those statements are set forth on pages
23 2 and 3 of the staff supplemental FSA.

24 I just wanted to make sure that Duke's
25 understanding of the Committee's intention there

1 is correct. Our understanding is that the
2 Committee made those statements in its hearing
3 order not to prejudge any of the factual or legal
4 issues that you'll be hearing in this proceeding
5 and in this hearing, but rather just to identify
6 issues that you would like to see addressed here
7 in this proceeding.

8 And I say this specifically because I
9 think it would be inappropriate for people to cite
10 those statements in the hearing order as if they
11 were decisions of the Committee on those issues.

12 Do I understand the Committee's
13 intention correctly?

14 HEARING OFFICER FAY: Yes, that's
15 correct. And, in fact, as you know, Duke
16 specifically asked the Committee to rule on the
17 ultimate question about impacts and the
18 feasibility of alternative cooling, and also the
19 baseline question.

20 The Committee declined to rule on the
21 first two points; did rule on the baseline
22 question. But just as we did not rule on the
23 ultimate question of impacts or feasibility of
24 alternative cooling, likewise we did not intend in
25 any way to indicate a ruling on similar matters in

1 that order on the habitat enhancement plan.

2 So the fact that the order included
3 items that the Committee would like to see
4 addressed was merely a way for the Committee to
5 keep open the option of looking at the habitat
6 enhancement plan as on one hand, compliance with
7 the Clean Water Act, and/or on the other hand, as
8 mitigation for significant environmental impact,
9 without prejudging whether or not there is a
10 significant environmental impact.

11 Any other preliminary matters before we
12 start? Hopefully we'll have enough amplification
13 that the people in back can hear. If you cannot
14 hear, please raise a hand and maybe our
15 audiovisual people can work on it as we go along.

16 All right. Mr. Thomas, I believe you've
17 been previously sworn in this case?

18 MR. THOMAS: In the case, yes; not
19 today.

20 HEARING OFFICER FAY: And you remain
21 under oath.

22 Whereupon,

23 MICHAEL THOMAS
24 was called as a witness herein, and having been
25 previously duly sworn, was examined and testified

1 further as follows:

2 DIRECT TESTIMONY

3 MR. THOMAS: Thank you, Mr. Fay.

4 As Mr. Fay mentioned, I will cover a
5 couple of topics today. I'll very briefly talk
6 about Duke's habitat enhancement proposal and our
7 reaction to that proposal. And also talk about
8 the administrative draft permit that we sent out
9 for review for this proceeding.

10 And as Mr. Fay said, that administrative
11 draft is just that, it's a draft. It is not a
12 final document. It is not a reflection of the
13 Regional Board, itself. It's a reflection of the
14 staff's position at this point in time.

15 With respect to the permit I'll cover
16 Clean Water Act section 316(b) adverse impacts, as
17 they are discussed in the draft permit,
18 alternatives and our recommendation. And if I
19 stray from the subject that is before the
20 Commission today, just tell me and I'll get back
21 on the subject. I hope I won't do that.

22 Duke Energy's habitat enhancement
23 proposal. It uses a larvae for larvae or a
24 biomass for biomass type replacement methodology;
25 or at least that's our understanding of it.

1 And as we mention in the permit we don't
2 think that that is necessarily the best approach.
3 We think it misses the mark. And the mark that we
4 think is more accurate would be to look towards
5 maintaining populations and communities of the
6 entrained taxa. And we think we can do that with
7 the approach that we're proposing.

8 There is overlap regardless of what
9 methodology is used, and I'll talk about that in a
10 minute.

11 Also that this biomass conversion and
12 literally replacing larvae is not required by
13 section 316(b) of the Clean Water Act.

14 Monitoring in Duke's proposal, we think
15 it's understated. The level of funding that's
16 dedicated to monitoring and the type of monitoring
17 we think should be beefed up.

18 The funds that Duke proposes, the
19 overall fund amount is \$12.5 million. That is the
20 lower end of the dollar range that Regional Board
21 Staff has been recommending to the Regional Board,
22 itself, in our previous reports. Our dollar range
23 has been about \$12- to \$22-million. And Duke's
24 proposal is \$12.5 million. So they're at the
25 lower end of that range.

1 The projects that are listed in Duke
2 Energy's proposal are straight from the Philip
3 Williams and Associates' report to the Regional
4 Board. The Philip Williams and Associates is an
5 independent consultant to the Board. And Jeff
6 Haltiner of Philip Williams and Associates is here
7 today to talk to the Commission.

8 There are different methods out there
9 that are being discussed. There's Duke's
10 proposal, which is the biomass conversion method,
11 and the \$12.5 million that they are proposing as
12 part of that proposal.

13 There's the CEC Staff response to that
14 proposal which is essentially Duke's dollar amount
15 times three to deal with the uncertainties and
16 other expenses that would be involved, which comes
17 out to about \$37 million.

18 There's a Regional Board Staff proposal
19 that we've previously presented to the Board,
20 which is conversion of larvae to acres, and then
21 converting those acres into dollars. And based on
22 actual projects that have been done in this
23 watershed we estimated that the dollar value would
24 be \$12- to \$23-million.

25 We also have this more recent approach

1 which involves reducing sedimentation in the
2 watershed and preventing the filling in of the
3 Bay. And we think we can get a 50 percent
4 reduction in sedimentation for about \$12- to \$25-
5 million.

6 So those are the dollar values that are
7 being talked about. And my point here with this
8 slide is regardless of what method is used, they
9 all lead to the same type of work, the same type
10 of projects that need to get done in this
11 watershed. These are very high priority items
12 that regardless of the methodology that's used,
13 these things need to get done.

14 And sometimes what bureaucracies do is
15 we stay out here in the perimeter and we argue
16 about these things, and we don't get the work done
17 that actually needs to get done. And I hope that
18 we can actually move forward and get out of these
19 methodologies and stop arguing about them and
20 trying to figure out how to get these projects
21 done.

22 On to the permit. The permit discusses
23 Clean Water Act section 316(b). 316(b) requires
24 the best technology available and to minimize
25 adverse impacts.

1 In practice the EPA has used a cost test
2 associated with the 316(b) analysis. The cost
3 test is just simply is the cost, totally
4 disproportionate to the benefit to be gained for
5 whatever alternative is being considered. And
6 I'll talk a little bit more about each one of
7 these.

8 As I mentioned, section 316(b) requires
9 the best technology available. The key word there
10 is available. Is the technology available for the
11 specific project that is being discussed.

12 We know that closed cooling systems are
13 available, or are feasible, in general, in a
14 general sense. We have all the information that
15 the EPA has generated on these closed cooling
16 systems for the new regulations, for new
17 facilities, and the proposed regulations for
18 existing facilities.

19 We have the TetraTech report to the
20 Regional Board which says that these systems are
21 feasible in a general sense. And in previous
22 staff reports we've said to the Board that these
23 closed cooling systems are feasible in a general
24 sense.

25 We know that most of the power plants,

1 for instance, that are being built in California
2 will be using closed cooling water systems.

3 But the question is, is closed cooling,
4 are these various closed cooling alternatives, are
5 they available in this project, in Morro Bay,
6 given the specific, site specific parameters
7 involved in this project.

8 And our conclusion in the draft permit
9 is that they are not currently available due to
10 the impasse between Energy Commission Staff and
11 Duke Energy and the City of Morro Bay.

12 As you know, the City of Morro Bay has
13 adopted a resolution regarding this issue. And it
14 concerns noise, visual, land use impacts and
15 compliance with various LORS, laws, ordinances,
16 and regulations.

17 The Regional Board cannot resolve these
18 issues. It's outside of our jurisdiction. We do
19 realize, though, that the Energy Commission can
20 resolve these issues. So while the administrative
21 draft permit that we sent out says that currently
22 these systems are not available in Morro Bay,
23 given this impasse, and the City's position, we
24 will reflect the Presiding Member's decision in
25 the final draft permit that goes before our Board.

1 So the permit you have is an
2 administrative draft. We'll send out a final in
3 early January, around early January. And that
4 final will reflect the Presiding Member's
5 decision. If the Presiding Member's resolves
6 those issues, then our permit will reflect that.

7 Regarding the cost test, the EPA hasn't,
8 in the past, used this wholly disproportionate
9 cost test. That language is not included in the
10 actual statute, but it's been a test that's been
11 applied in practice and upheld in the courts.

12 The idea is that the cost of a closed
13 cooling system may be wholly disproportionate to
14 the cost of the benefit that is to be gained from
15 that system. And in our analysis we compared the
16 cost of closed cooling systems to the cost of
17 habitat enhancement and the benefits. It's a
18 cost/benefit type analysis.

19 And our conclusion is that the overall
20 benefit of habitat enhancement is much greater for
21 less cost over a long period of time, over the
22 long term. A 50 percent reduction in
23 sedimentation in the watershed would double the
24 life of the estuary. And that results in a gain
25 of several hundred thousand acre years of

1 estuarine habitat productivity. That is over
2 several hundred years.

3 At the bottom of the slide here I just
4 list the costs. The habitat enhancement, as we
5 said, would cost about \$12- to \$25-million to
6 reduce sedimentation by approximately 50 percent.
7 Closed cooling systems, according to the
8 TetraTech's independent report to the Regional
9 Board would be \$28-plus million to \$114 million.
10 I say 28-million-plus is the lower end of the
11 range, because that number 28 is wrong.

12 We talked to TetraTech about that lower
13 number, and \$28 million is for wet cooling towers,
14 for salt water cooling towers. And we've said to
15 TetraTech that we believe that the plume abatement
16 equipment would have to be used on those cooling
17 towers. And TetraTech has responded they're
18 currently working on this issue for us, but they
19 responded verbally that we would probably have to
20 go to a hybrid type system to deal with the plume,
21 to deal with the visual impacts from the plume.
22 And that would push the cost closer to that higher
23 end which is \$114 million.

24 So, that lower end is, in our opinion,
25 greatly understated. We're actually talking about

1 in the neighborhood of \$100 million. So we feel
2 that the costs are wholly disproportionate
3 compared to the benefits that would be gained, the
4 cost and benefit of habitat enhancement approach.

5 So, one of the things that we want to
6 talk about today is habitat enhancement applicable
7 in this particular situation. We think that it
8 is. And this little diagram is to illustrate that
9 the Bay is filling in. There's no doubt about it.
10 Over on the right-hand side in the 1890s, this
11 illustration shows that in the 1890s we had about
12 1255 acres of water, surface water, at the mean
13 low lower water level.

14 And then in the 1990s, about 100 years
15 later, we have about 525 acres of surface water
16 left at this mean low lower water level. And the
17 Regional Board's independent consultants, Dr.
18 Cailliet and Jeff Haltiner are going to talk more
19 about this issue, the loss of habitat in the Bay.
20 And things we can do to prevent the loss of
21 habitat.

22 So now I want to hand it over to Jeff
23 Haltiner, who's with Philip Williams and
24 Associates. And he will go over his presentation.
25 And then Dr. Cailliet will come up and he'll go

1 over his presentation. And Dr. Cailliet will
2 cover entrainment and impingement results, but
3 only very briefly because that's already been
4 discussed. We only want to discuss it in context,
5 habitat needed to support the entrained taxa and
6 monitoring that could be done.

7 So, with that I'll hand it over to Jeff.

8 HEARING OFFICER FAY: Mr. Thomas, do you
9 mind if I step in and assist you in the
10 presentation of your witnesses?

11 MR. THOMAS: Sure.

12 HEARING OFFICER FAY: Okay. Will the
13 court reporter please swear the next witness.
14 Whereupon,

15 JEFFREY HALTINER

16 was called as a witness herein, and after first
17 having been duly sworn, was examined and testified
18 as follows:

19 DIRECT TESTIMONY

20 HEARING OFFICER FAY: Could you please
21 state your name and position for the record.

22 DR. HALTINER: My name is Jeff Haltiner;
23 I'm a Principal in the firm of Philip Williams and
24 Associates. We're a consulting hydrology
25 hydraulics firm.

1 HEARING OFFICER FAY: And, Mr. Haltiner,
2 just very briefly, give us a little background on
3 your education and experience.

4 DR. HALTINER: I have a PhD in civil
5 engineering in the field of hydrology and water
6 resources. And I've been working in environmental
7 hydrology since 1972, so approximately 30 years.

8 HEARING OFFICER FAY: Thank you.

9 (Pause.)

10 DR. HALTINER: Good morning,
11 Commissioners, staff members and stakeholders.
12 This morning what I'd like to do is spend about 20
13 minutes talking to you about the evolution
14 processes in Morro Bay and in particular about
15 sedimentation issues related to the Bay.

16 I first began working on Morro Bay
17 sediment issues in 1986 with the California
18 Coastal Conservancy and the local resource
19 conservation districts. The interest in the Bay
20 relates primarily to its unique position along the
21 California coast. One of the key issues is it's
22 one of the most important estuaries and probably
23 the only significant estuary between about Elkhorn
24 Slough on the north and Mugu Lagoon on the south.
25 So quite a range of the coastline here with Morro

1 Bay being one of the most -- the key estuaries
2 along that reach.

3 Our involvement came basically at the
4 request of local stakeholders in interest who,
5 over a period of time, had noticed in their
6 lifetime, anyway, that the Bay appeared to be
7 filling in, and that there were concerns related
8 to that, both in terms of the life of the Bay and
9 existing habitat issues.

10 We began our work on the Bay by
11 subdividing it into four zones, ecological zones.
12 This had been some work that had previously been
13 started in Morro Bay. So we talk about zone one
14 being the mouth of the Bay. This is the area of
15 most active change and human intervention, direct
16 human intervention over a long period of time.
17 The mid-Bay areas; the back Bay; and then the
18 delta zone.

19 And this is an infrared aerial photo of
20 the Bay showing those zones from the aerial
21 photograph.

22 We began our work by looking at
23 historical changes in the Bay. And in particular
24 we were very fortunate to have quite good mapping
25 of the Bay starting in 1884. And we compared that

1 with a more current mapping of the Bay, first
2 based on a map that our firm had contracted in
3 1988. And then more recently by some mapping that
4 was done in 1998 as part of the NEP program.

5 But in particular what you can note here
6 is the differences in elevation zone different
7 parts of the Bay. One of the things about the Bay
8 is that it's always been, or at least in
9 historical terms the last few hundred years, it is
10 a relatively shallow bay, so we are talking about
11 fairly shallow conditions over much of the Bay to
12 begin with.

13 But what we noticed was over this period
14 of time there was considerable filling, on the
15 order of two feet, particularly in the back bay.
16 And also considerable changes in the delta area as
17 a result of the sediment being brought down by
18 Chorro and Los Osos Creeks.

19 And so on a relative basis, compared to
20 this inner tidal zone, the Bay had lost about a
21 quarter, 20 to 25 percent of its inner tidal
22 volume of water over this approximately 100-year
23 period.

24 We also looked at changes, direct
25 changes in the delta. This is some work that was

1 done by a professor at CalPoly a few years back.

2 But looking at the extension of the delta out into

3 the Bay over the last 100 years or so, 75 years.

4 And so as the sediment is brought down by the

5 Chorro Creek and also by Los Osos Creek, this

6 delta is -- out and pushing its way out into the

7 Bay, decreasing the bay volume.

8 We did some looking at those changes and

9 what we found is that up here, this is an

10 elevation zone here, so this is the inner tidal

11 zone up in this area, and then this is the deep

12 water area. And as the Bay is progressively

13 filling in, we're getting deposition up here. We

14 do have ongoing dredging of the mouth of the Bay

15 and the navigation channel, so there was deep

16 water habitat that's been maintained. And then

17 also, over time, as the Bay is being converted

18 from more of a sub-tidal or inner tidal mud flat

19 zone to more of an emergent marsh system, we do

20 have these large channels that are produced. So

21 there is some erosion down in this zone.

22 HEARING OFFICER FAY: Excuse me, Dr.

23 Haltiner, if I can ask you to be a little self

24 conscious of the written record as you go, because

25 it's helpful for this audience here, but later

1 when somebody reads it on paper, the "here" and
2 "there" won't mean anything unless it's in
3 relationship to the document.

4 And we'd ask Mr. Thomas if you can
5 submit this PowerPoint presentation as a printout,
6 as an exhibit and serve it on the parties.

7 DR. HALTINER: Okay, I'll do that.

8 So just to summarize, this graph shows
9 the change in elevation along the Y axis versus
10 the volume of area of the Bay along the x axis
11 over a period of time.

12 And then to try to project out into the
13 future, we used a computer model. We had done
14 some initial estimates that showed that at the
15 current rates the Bay would persist as having open
16 water system for approximately 400 years. During
17 this current study then we tried to refine that
18 estimate by using a computer model that is based
19 on the amount of suspended sediment in the system
20 and the depth of the Bay.

21 And basically the more sediment you have
22 in concentration in the Bay, the more rapid
23 deposition is. As the Bay becomes shallower, the
24 rate of deposition decreases over time.

25 We then made projections. We used the

1 historical data, so this first graph shows the bed
2 elevation. And this is by zone, so we're looking
3 just at zone 4, as an example.

4 The first graph shows the bed elevation
5 versus time. And this is the historical record
6 from 1884. And what we see here is then the Bay
7 shallowing over time; this is an envelope curve
8 showing kind of a high and low estimate in that
9 zone.

10 And then we used the computer model to
11 predict out into the future so many hundred years
12 how that elevation would continue to change. So
13 it represents an extension of the historical
14 conditions.

15 And what we are showing here, these two
16 lines represent kind of the extent or the vertical
17 extent of the Bay. And this is the elevation
18 zone, this lower line is the elevation zone at
19 which the Bay changes, or a portion of the Bay
20 changes from mud flats to a vegetated salt marsh
21 type system.

22 So what we're predicting is that in this
23 zone four we could expect to see almost all of
24 that converted to a salt marsh in approximately
25 100 years.

1 And, again, we have a similar
2 presentation looking out into the future of
3 deposition over time. Now, again, I recognize if
4 you look at the scale on this, we're looking at
5 many years into the future. On the range between
6 200, 400, 600 years into the future.

7 And basically what that's saying is that
8 as the Bay fills in and gets shallower and
9 shallower the rate of deposition will continue to
10 decrease over time. So it's an exponential curve.
11 It has the highest rates of deposition at the
12 present.

13 Now, one of the other concerns about the
14 ability to predict the future, which is always a
15 challenge, is people are concerned about the
16 possibility of accelerated sea level rise. And so
17 we did this graph in our report just to discuss
18 what might happen if we have the greenhouse effect
19 very dramatic, and we have a change in climate and
20 sea level rise.

21 And we just showed the various changes.
22 There could be a whole range of possible future
23 conditions that make it very hard to predict in
24 the say 100- to 500-year future exactly how the
25 Bay would change in response to that.

1 We would project a moving inward of the
2 barrier beach, and extend landward here of the Bay
3 extant and perhaps a whole different climate
4 regime and erosion regime. So we didn't attempt
5 to model that. But we did want to at least
6 discuss it in our report for completeness.

7 So, given the nature of the historical
8 changes in the Bay, we had identified that
9 sediment from the watershed, the Chorro and Los
10 Osos Creeks watershed, was the main contributor to
11 sedimentation in the back part of the Bay over
12 time.

13 And so to look at that in more detail we
14 did some watershed studies, and we also used a lot
15 of the existing ongoing watershed studies about
16 what was happening in terms of sediment supply
17 from the watershed.

18 And we looked at a range of locations
19 starting from the upper watershed, the highest
20 portions in the watershed, and then working our
21 way down through the different sized stream
22 systems towards the Bay.

23 And what we find is a combination of
24 erosion. Here's the headwater area. You can see
25 a landslide here, very heavy grazing issues, gully

1 development in here on grazing lands. And then as
2 we get further down in these main tributary
3 channels, the channels, themselves, are eroding in
4 response to a lack of vegetation and support.

5 And then down the main channels, the
6 Chorro and Los Osos Creek, here you can see a very
7 severe erosion problem on the order of 20 vertical
8 feet of down-cutting. And all of this sediment is
9 brought down through this whole network down to
10 the Bay.

11 Just an example of some of the typical
12 erosions problems that you see in the system.

13 And this is one showing some ag land
14 here, and you can see very dramatic gullies that
15 have developed in here. A little bit of -- almost
16 no vegetation to support the creek systems; and in
17 response then, large suppliers of sediment to the
18 main creeks.

19 And so then to potentially address these
20 issues we developed the restoration plan, or
21 looked at restoration opportunities. And we
22 followed the same type of a system. So we looked
23 at restoration opportunities that could be applied
24 throughout the upper watershed. And these have to
25 do with fencing. It's hard to see here in this

1 picture, but basically this a fenceline. You can
2 see the rancher on this side, grass is quite a bit
3 thicker and deeper; they're managing their ranch a
4 little more carefully to prevent erosion.

5 And then down through the system, this
6 is a series of check-dams in a gully system.
7 There's opportunities for revegetation. In the
8 larger channels there's opportunities to put in
9 boulder check dams. And then finally recreate
10 channel-flood plane connections. This is a system
11 that used to be vertically incised about 20 feet
12 deep cut here, and we've created a terrace on this
13 side so that it can trap water.

14 This is a picture of the Chorro Flats
15 restoration project, one project in the watershed
16 that I'll talk about a little more in just a
17 second.

18 And this is a closeup; this is a project
19 that we initiated studies on in 1991, 1990 about.
20 This is an area down near the Bay, is located just
21 over here on this wall. And this is Chorro
22 Willows area here. This is an area of former
23 riparian wetland that had been -- the river used
24 to flow across the middle of this site, Chorro
25 Creek, and come down here into the Bay.

1 The farmer, just after the war, had
2 pushed it over the hillside here and built this
3 dike so that he could reclaim this area for
4 farmland. And so this former flood plane was
5 disconnected from the channel.

6 We were able to acquire this land, I
7 should say we, the Coastal Conservancy, was able
8 to acquire this land in approximately 1990. And
9 we initiated a restoration and sediment management
10 plan where we wanted to reconnect this flood plane
11 to the channel to trap sediment before it got to
12 the Bay.

13 This is that same site in 1996. We had
14 removed the levy along that the farmer had built
15 here. And then we had built a couple of pilot
16 channels along here that were in the location of
17 the historical channel location.

18 We didn't actually force the river to go
19 back here. I had initially wanted to do that, but
20 there was discussion about different approaches.
21 So we built this kind of a pilot channel in a way
22 of saying to the river, if you're interested in
23 moving, maybe you would consider moving over here.

24 And my perspective on that was, as an
25 engineer I didn't want it to move over here

1 towards this trailer park or towards South Bay
2 Boulevard, which would have gotten me in trouble.

3 So this was a little difference of
4 opinion among the scientists and the engineers.

5 Go to the next one. This is the current
6 site at present. We were very fortunate to get
7 this project completed just as the -- we had the
8 big el nino year in 1997, I believe, coincident
9 with the highway 46 fire. Had a huge amount of
10 sediment coming down; the river immediately jumped
11 into our pilot channel and decided to stay there.

12 And we've had really good revegetation.
13 And there's an active restoration project. The
14 project has trapped about 250,000 yards of
15 sediment to date, and there's been a nice
16 monitoring program that the RCD -- the RCD has
17 been instrumental in implementing this and keeping
18 it -- tracking the performance of it.

19 So, we know, basically then we used our
20 studies in the watershed. This is a complicated
21 slide, I apologize, but basically it summarizes
22 for the four zones in the Bay what elevation zones
23 could be preserved by different levels of sediment
24 reduction in the watershed.

25 So what we're showing is zone with no

1 reduction 25, 50, and 75 percent reduction of
2 sediment from the watershed, what the projected
3 future trends of these elevation, the bottom
4 elevation in the different zones is.

5 This could be summarized in this next
6 graph which then shows you a fraction of the 1884
7 area that could be maintained at different -- in
8 the elevation zone of interest, which is the mud
9 flat zone that we're particularly interested in,
10 with different levels of sediment reduction out
11 into the future. So this is the continuation of
12 the historic trend on this lowest graph here, and
13 then 25, 50 and 75 percent reduction.

14 Finally, in order to try to convert this
15 into something that was comparable to the impacts,
16 we converted those areas of change in each of
17 those four zones. So we looked at the area of
18 habitat, mud flat type habitat in those zones that
19 could be preserved into the future for a certain
20 period of time.

21 And so, for example, if you have ten
22 acres of the Bay that's preserved in that
23 intertidal zone, for ten years, that would
24 represent 100 acre years of habitat preserved or
25 gained into the future with these different levels

1 of sediment reduction.

2 We also looked at opportunities for
3 direct enhancement around the perimeter of the
4 Bay. This is showing the Chorro Creek delta area.
5 And one of the things we had observed in the early
6 '90s was that the upper part of this delta, where
7 most of this delta exists as tidal marsh habitat,
8 that the upper portions of this which had formerly
9 been tidal marsh had been invaded by an invasive
10 weed species called hoary cress. And that was
11 because of deposition. This is the old Twin
12 Bridges area right here. Here's the Chorro
13 Flats. And this area was being raised up
14 by the sediment deposition.

15 And this is what this looks like on the
16 ground out here. You can see the area of mid to
17 high marsh, pickle weed habitat. And then this is
18 the area that's now gotten too high for that. It
19 doesn't get inundated by the tides any more, and
20 so this invasive noxious weed has come in and
21 taken over a big portion of the upper delta.

22 And so we propose to excavate in this
23 area. This is a project we actually developed for
24 the State Parks back in 1991. We proposed to
25 excavate in this area to remove that accumulated

1 sediment and allow then the tidal waters to flow
2 back in here and reconvert that area to a tidal
3 marsh.

4 I'm going to go through these next two
5 tables pretty quickly because I know we're a
6 little short on time. But basically what we
7 developed, then, from our watershed studies was we
8 looked at the range of opportunities for watershed
9 management. We looked at the amount of sediment
10 that could be controlled or preserved in the
11 watershed rather than coming down to the Bay. And
12 we looked at some approximate costs for those
13 projects.

14 And so what we were showing is that we
15 could reduce the sedimentation by about 42 percent
16 on an average annual basis with an influx of
17 approximately \$12 million worth of habitat
18 enhancement opportunities.

19 And we did two different scenarios. One
20 that would control it to about 42 percent, one
21 that we estimated at 52 percent. It would cost
22 about \$25 million.

23 So in conclusion, then, what our studies
24 show is that the Bay habitat and volume is being
25 lost at an exponential rate. That there are

1 opportunities for projects that can reduce
2 sedimentation and minimize these habitat losses.
3 That an approximate cost for this type of
4 watershed work that could reduce sediment rates by
5 about 50 percent would cost between \$12 and \$50
6 million.

7 And that this would extend the life of
8 the Bay. And by life of the Bay I mean the Bay
9 existing as an inner tidal mud flat zone, not a
10 salt marsh. But a 50 percent reduction could
11 approximately double the life of the Bay in that
12 zone.

13 HEARING OFFICER FAY: That last range,
14 is it \$12 to \$25 million, is that what --

15 DR. HALTINER: Yes, that's the
16 approximate cost range, yes.

17 HEARING OFFICER FAY: Okay. Thank you.

18 MR. THOMAS: Okay, now I'd like to
19 introduce Greg Cailliet. He's going to stay
20 there, if that's all right. And then I'll work
21 the slides for you.

22 HEARING OFFICER FAY: Would the court
23 reporter please swear the witness.

24 //

25 //

1 Whereupon,

2 GREGORY M. CAILLIET

3 was called as a witness herein, and after first
4 having been duly sworn, was examined and testified
5 as follows:

6 DIRECT TESTIMONY

7 HEARING OFFICER FAY: Dr. Cailliet,
8 could you just give us your name and a brief
9 summary of your education and experience?

10 DR. CAILLIET: Sure. Is it okay for me
11 to stand here?

12 HEARING OFFICER FAY: Yes, that's fine.

13 DR. CAILLIET: My name is Greg Cailliet,
14 Gregor M. Cailliet. I'm a Professor of 30 years
15 standing at Moss Landing Marine Laboratories,
16 which is part of the California State University
17 system. I received my bachelors and PhD at UC
18 Santa Barbara. The latter in 1972.

19 I'm basically a marine fish ecologist.
20 I've studied Elkhorn Slough fishes personally.
21 And have published half a dozen papers on that
22 subject. And I also consider myself a fairly good
23 marine ecologist, but mostly from the fish
24 perspective. And I've been hired relatively
25 recently to be a consultant for the Regional Water

1 Quality Control Board on this project.

2 Michael, could I borrow the pointer?

3 Okay.

4 As a marine ecologist who studies fishes
5 I've been asked to do three things by Michael and
6 the Regional Board. One is to very briefly review
7 entrainment losses from the studies that were done
8 by Duke and Tenera. But to link those
9 specifically to critical habitat for entrained
10 species. In other words, where are those larvae
11 coming from? Where are the fishes that are
12 producing them? And how would perhaps habitat
13 enhancement programs help those processes out?

14 And then finally, to discuss a little
15 bit about habitat enhancement program and how one
16 thing that I thought was fairly weak in the
17 proposal by Duke, monitoring, might be useful to
18 seeing whether or not any habitat enhancement that
19 might end up being done was successful.

20 First of all, as you all know, water is
21 entrained here at the power plant and comes out as
22 warm water. And in the process of entraining that
23 water, certain larvae, spores, eggs and so on,
24 marine organisms and estuarine organisms primarily
25 are entrained.

1 So the process is relatively simple. We
2 have adults that get caught on the screen; that's
3 impingement. I will talk about that very briefly
4 because we consider it to be minor. But a lot of
5 the larvae get through and they go through this
6 power plant. And the warm cooling water and high
7 velocity, among other things, kills the majority
8 of these organisms, the eggs, larvae and spores,
9 and they are therefore lost to the system. So
10 this is the process called entrainment.

11 To summarize very briefly for you,
12 impingement, we think, is a relatively minor
13 importance issue, with about 2800 pounds of fish
14 per year, and perhaps 800 pounds of invertebrates
15 per year impinged on the screens at the intake.

16 However, entrainment, whether it's
17 looked at in one of three measures, has a greater
18 importance. And some of the estimates of
19 proportional loss range from 17 to 33 percent, or
20 10 percent to 33 percent, if you use a weighted
21 average, something we've discussed at hearings and
22 at many many meetings.

23 To summarize in pie diagrams, this first
24 thing shows entrainment only. And the colors on
25 there indicate what the species are that are

1 entrained the most. And this is important for the
2 purposes of this discussion in that this big green
3 area here, which is the unidentified goby
4 category, over 75 percent of the fishes, shadow
5 goby is yellow; the remaining species are purple.
6 There's a couple of other things. But as you can
7 see, the majority of these species are estuarine
8 species that live in the water that we're actually
9 losing based on Dr. Haltiner's discussion in the
10 Morro Bay Estuary.

11 The invertebrates, I imagine, you could
12 make the same case for, but that's not my field of
13 interest. Nevertheless, there's about 313.5
14 million megalops larvae of crustaceans lost per
15 year due to the power plant entrainment. And
16 about 526 million fish larvae per year.

17 So the idea is to link these as best
18 possible to the habitat of the adults that
19 produced these larvae.

20 When we do one of the three approaches
21 of the proportional larval losses you'll notice
22 that the column here is total entrainment; the
23 column here is the species that are entrained; the
24 mortality rate is here. And it's that mortality
25 rate that we're using as an index of what

1 proportion of the larvae that are available to the
2 plant are actually sucked into the plant and
3 suffer mortality as a result.

4 The biggest ones would be the
5 unidentified goby category, 3.9 times 10 to the
6 8th, which is translated into 11.5 percent of
7 those that are available to the plant are killed
8 by the plant. The very high one, the comb-tooth
9 blennies, is another category. They're not
10 extremely abundant in the Bay, but there's a high
11 proportion of them available in the water column.
12 They are sucked in. Jacks -- and a couple of
13 other species like the staghorn sculpin are also
14 impacted.

15 But the majority of the loss in terms of
16 numbers and the relatively high percent mortality
17 are the gobies. They're unidentified because the
18 larvae are very difficult to tell from one species
19 to another.

20 So, what will we do with these results.
21 As an ecologist interested in the ecology of the
22 fishes in the ecosystem and communities they live
23 in I would think the goal would be to maintain
24 those populations and communities that are
25 producing these larvae that are sucked in by the

1 plant.

2 And one way to do this is to preserve
3 and enhance critical habitat, some of which you
4 heard in the previous presentation by Dr.
5 Haltiner.

6 Two ways to go. One would be sediment
7 reduction; another might be other restoration
8 activities, perhaps dredging to improve the areas
9 below the salt marsh level to increase the
10 longevity of those habitats, what I'm calling
11 critical habitats, for these fishes and
12 invertebrates whose larvae are entrained.

13 And I would think that one of the most
14 important things to do, if one would go down this
15 road of habitat enhancement, would be to come up
16 with as best you can comprehensive monitoring
17 processes to evaluate the success of this. Of
18 course, using controls which would be natural
19 habitats in Morro Bay.

20 Okay. Well, as you've seen in a
21 previous slide that Dr. Haltiner pointed out,
22 these are the four zones that the Phil Williams
23 and Associates put together for their sediment
24 analysis. We don't need to belabor that. But you
25 can see that there's water there, there's

1 habitats.

2 The next slide shows you a diagram, in
3 this case, of the 1998 bathymetry or the depth
4 regions of Morro Bay. And Jeff showed you the
5 changes in those over the last decades. The point
6 here is that we're losing habitat that is critical
7 for gobies and other mud flat and tidal creek and
8 channel fishes, and crabs, as well, I believe in
9 exchange for tidal marsh, which is not inundated
10 with water as much due to sediment.

11 Next, Michael. And I'm not going to go
12 through all of those slides from Phil Williams,
13 but this one summarizes -- it's kind of hard to
14 see because I changed the colors on the slide they
15 gave me -- but the basic point is that the
16 baseline would be over time, from 1950 through
17 2000, where we're starting now, a little bit
18 before now, to 2250, the habitat area gained in
19 acre years would be enhanced considerably if you
20 went from 25 to 50 to 75 sediment reduction. In
21 other words, you would provide more habitat that
22 would be useful to estuarine fishes like gobies,
23 and perhaps blennies, as well, by this process.

24 Okay, I had to show what a goby looked
25 like, and something about its habitat. And the

1 only picture I could find that was of decent
2 characteristic from our local gobies was from Ed
3 Brothers, PhD's thesis at Scripps Institution of
4 Oceanography. Not showing the arrow goby, but
5 showing a different goby, ilypnus.

6 The point is that most of them live in
7 burrows. They secrete mucous around these
8 burrows. And therefore, the adult populations are
9 extremely hard to sample. As a matter of fact,
10 throughout most of these technical work group
11 meetings we've assumed you can't sample gobies.

12 Turns out I think you can. And I'll show you
13 how next.

14 The first thing to point out is that
15 taking this slide from the Phil Williams and
16 Associates proposal showing that if you don't do
17 anything this is what the sediment level will do.
18 It will increase the mean lower low water up to
19 about here, and these are heights in meters. And
20 so you've got to convert meters to feet.

21 Yes, I'm sorry?

22 HEARING OFFICER FAY: Dr. Cailliet, when
23 you say "up to here" could you indicate
24 numerically what the chart shows --

25 DR. CAILLIET: Sure.

1 HEARING OFFICER FAY: -- so we have it
2 on the record.

3 DR. CAILLIET: I'm sorry, I remember you
4 telling Dr. Haltiner the same thing.

5 On the x axis we have the year from 1998
6 from zero to 1000; on the y axis is the meters of
7 seawater above the mean lower low water level from
8 1998 as a standard. And the curve is right out of
9 the Phil Williams and Associates proposal, saying
10 that if you did nothing to reduce sedimentation
11 you would have a rapid increase in that. Whereas,
12 if you did 75 percent reduction you would prevent
13 that from happening.

14 My point is from this slide is to look
15 at these three words on the right which don't
16 really indicate strictly the habitat. But the
17 point is I've made them red. Those red habitats,
18 everything below salt marsh are good habitats for
19 fishes, especially for gobies. I'll show you data
20 on that in a minute. They call them mud flat
21 algae and eelgrass, which reflects some of the
22 organisms that live there. But basically there
23 are tidal heights, 1.4 meters down to around .4,
24 maybe down even below that where these gobies
25 live, as adults.

1 Remember this slide from Michael Thomas'
2 presentation showing that we have lost water area
3 in Morro Bay over time primarily due to
4 sedimentation and other processes. That means to
5 me, as an ichthyologist, that we've lost goby
6 habitat. We've lost fish habitat, as well.

7 So therefore, three things. Reducing
8 sedimentation will, in my opinion, increase the
9 longevity of critical habitat for these fishes.
10 Wetland habitat will enhance adult fishes,
11 especially goby population.

12 Ultimately, remember, that the adult
13 fishes, they're not the ones that are killed by
14 the power plant Their larvae are. Those adult
15 fishes, if provided additional habitat, I predict,
16 will increase their densities. And those that
17 survive will produce offspring. And those
18 offspring would not have been produced without
19 sediment control and other wetland enhancement,
20 making the habitats for those adult fishes more
21 available.

22 Another option might be, and this is not
23 really stressed much in the HEP to date, is that
24 you could increase estuarine aquatic or watery
25 habitat by dredging to recover loss volume, as

1 well.

2 Okay, finally, can monitoring be done.

3 One of my major criticisms of the HEP proposal was
4 that there really wasn't much in there about
5 monitoring. So I did some homework and called
6 around, tried to find out from lots of my friends
7 who were doing similar work. I don't think I
8 uncovered all of them, but I found several.

9 The point is that if restoration or
10 sediment reduction is done, we need, I believe, to
11 find a way to monitor the success. Whether or not
12 there are effects of this restoration process.

13 Next. So there's two ways that we've
14 come up with. And this was put together by
15 several of us in a meeting a few weeks ago,
16 including Pete Raimondi and Michael Thomas and
17 Dave Mayer of Tenera. One would be to look at the
18 overall condition of Morro Bay over time. Assume
19 that the sediment reduction things went into
20 effect, or that dredging and some other kinds of
21 restoration did occur.

22 One way to look at it, across trophic
23 levels, that would be feeding habit of the fishes
24 there, relative to controls, areas that haven't
25 been modified, to use indicator organisms and

1 indicator measures for specific habitats of the
2 overall condition of the ecosystem. This is
3 approach one.

4 Approach two will be next. The next
5 slide. And we have used an example that Dr.
6 Raimondi from UC Santa Cruz has been involved
7 with, which is looking at the San Dieguito River
8 Valley, which an area in process of restoration.
9 And they have now come up with a monitoring and
10 management plan for the San Onofre nuclear
11 generating station wetland mitigation program.
12 This is not an official document, I don't believe.
13 It's a draft. But, again, it's ideas that I
14 thought I'd present here because they're positive.

15 Next, Michael. Two ways. One is to
16 look at the physical performance of the habitat
17 that you've restored. So there are standards for
18 that in detail. But here are a list of them:
19 topography; water quality; the tidal prism; and
20 habitat areas. So ways of measuring that are
21 important.

22 But more important to me is to look at
23 indicator species or groups of species, the
24 fishes, macro invertebrates, birds, salt marsh
25 vascular plants and algae, the reproductive

1 success of all of those organisms; how they tend
2 to work in the food chain; and whether or not it
3 is enhanced habitat for exotic species or
4 prevented that.

5 In other words, there are ways at the
6 community level of monitoring these by using
7 indicator organisms. They've developed this for
8 the San Dieguito Lagoon. I think someone up here
9 could do an equally good job evaluating the Morro
10 Bay restoration if it goes forward.

11 Next. So, the second approach, and this
12 is the one I'm really excited about, because it
13 isn't directly linked to the entrainment effects,
14 but fairly close, is the monitor mud flat tidal
15 creek fishes like gobies, using techniques that
16 have just been invented pretty much, by Dr. Steve
17 Schroeter, Mark Page, Dan Reed at UC Santa
18 Barbara, to look at southern California estuaries,
19 some of which are in stages of restoration, to see
20 if different tidal levels and their habitats have
21 successfully attracted, and therefore have
22 occupants of these kinds of fishes.

23 And I'd like to show you some detail
24 real quick results from this that are very
25 promising, very positive.

1 Two sites, one is the Los Peñasquitos
2 Lagoon shown here. Just to give you an idea that
3 it's a similar setup, it's just in southern
4 California. And the yellow marks where they
5 sampled this lagoon, right at the edge. The
6 habitat we're talking about using if sedimentation
7 increases.

8 And the next example is the San Elijo
9 Lagoon, also in southern California, with a
10 similar study site right here, in that system.

11 Next. Again, to remind you, we're after
12 these fishes that are stubbornly occupying
13 burrows; they don't like to come out. They live
14 in the burrows because they can reproduce in
15 there, protect their young, avoid predation and
16 occupy habitats where they're actually safe, okay?

17 How do you sample those? Well, here's
18 the technique that those three scientists
19 invented, which is really exciting to me. It's
20 this large cylinder, it's .43 meters in diameter,
21 I believe, or .43 square meters, that's the
22 surface area.

23 They put it at different levels when
24 there's water over the mud flat. And they have
25 little sticks out here that tell them what the

1 water height is. They know what the actual level
2 of the geographical situation is.

3 And then they bubble carbon dioxide
4 which puts fish to sleep. It's an anesthetic.
5 But the neat thing about it is it doesn't kill the
6 fishes. It actually puts them to sleep. They
7 come out of their burrow. And then, next slide.

8 They take this little think they call a
9 binkie net, which was invented for another
10 purpose, but here it -- I can't explain it, but it
11 has a hinge, and so all these fishes that are in
12 the water are then hinged together into this net
13 and sand taken out of the water. And they do this
14 as many times as they need to to sample all the
15 fishes that have come out.

16 Now you ask the question, what's left in
17 the sediment. On some select samples they've gone
18 down and dug out with shovels all that sediment
19 and gone through it with a sieve and found out
20 that they're getting something like 99, 98 percent
21 of the gobies in those burrows. It's a pretty
22 exciting technique, I think.

23 Next slide. To give you two sets of
24 data to explain. These are histograms with three
25 different tidal heights, 2.4, 3.4, and 4.4 feet.

1 And the y axis is the actual density, the number
2 per, just think of it as a half meter square.
3 It's a .43 meter squared cylinder.

4 And you can see in Los Peñasquitos
5 Lagoon arrow gobies are a bit more abundant at
6 higher tidal levels right on the edge there, the
7 habitat that's being lost in Morro Bay. And they
8 range in the 10 up to 40 per half liter square.
9 Which means they range from around 20 to maybe 80
10 or 100 gobies in a square meter. A square meter
11 is a little over three feet. That's a lot of
12 gobies. That's a lot of habitat enhancement.

13 You'll notice the arrow goby lives a
14 little bit higher than the shadow goby does, one
15 of the other species that's entrained in Morro
16 Bay.

17 And the next slide for San Elijo in Los
18 Peñasquitos Lagoon shows similar values. But the
19 reason I put this here is that in San Elijo
20 Lagoon, two different tidal heights. At least at
21 the 1.5 foot deep water the actual arrow goby
22 density numbers per .3 meters square is up between
23 50 and 75, approximately 60.

24 So if you almost double that it's
25 probably 120 to 130 gobies, arrow gobies per

1 square meter of mud flat.

2 My point here is that number one, you
3 can monitor these fishes. And number two, you can
4 estimate their densities. And number three, you
5 could do this in areas that have been restored, in
6 areas that haven't been restored, do it with
7 replicates and actually test the hypothesis that
8 the restoration projects have been successful at
9 promoting habitat that is used by these gobies.

10 Ultimately, of course, you'd want to
11 know that those gobies are still healthy enough to
12 produce larvae. That's another story. I haven't
13 investigated that enough. But there are ways of
14 looking at that, too.

15 Next. Okay, so my conclusion from these
16 three sections is I believe habitat enhancement is
17 possible in the Morro Bay system through reduced
18 sedimentation and restoration processes such as
19 dredging to restore wetted areas or aquatic areas
20 that are now being lost to higher elevation tidal
21 marsh.

22 And I also believe, and these are
23 Michael's words, I know you would know that -- do-
24 able -- monitoring is something that you could
25 accomplish -- I'm supposed to be a scientist, I

1 have to talk differently -- the overall condition
2 of Morro Bay across trophic levels, if you look at
3 both just the fish level and the whole system,
4 relative controls could be studied by using
5 indicator organisms for specific habitats.

6 So, if the process does result in the
7 HEP occurring I honestly believe that monitoring
8 could evaluate the relative success of that
9 process.

10 And that's the end of my comments for
11 today.

12 HEARING OFFICER FAY: Thank you, Dr.
13 Cailliet. Does that conclude your presentation,
14 Mr. Thomas?

15 MR. THOMAS: No, I have just a couple
16 more things.

17 Just to quickly wrap this up, I started
18 out with a question before I introduced the
19 independent consultants, is habitat enhancement
20 applicable. In our view, yes, it is.

21 We have an exponential loss of estuarine
22 volume and habitat occurring. The causes and
23 solutions have been identified in several
24 documents. The National Estuarine Program
25 Conservation Plan, the Regional Board's total

1 maximum daily load order, Philip Williams and
2 Associate's report, and the supplemental memo to
3 the Board.

4 We know that major funding is needed to
5 accomplish this work, these action items. And we
6 don't believe these action items will happen
7 without this major funding. There's just no way
8 to get it done.

9 I've seen the arguments back and forth
10 about funding. Some people argue that there is
11 major funding available. But if there is, all
12 these people who are working on these projects
13 haven't found it.

14 I know there is funding available. I've
15 worked on several funding projects, myself. It is
16 very very difficult to get funding for this type
17 of work and we usually get it in small amounts,
18 \$50,000, \$100,000.

19 It's very difficult to get major
20 funding. You need what is called matched funding.
21 If you go to the Packard Foundation, or to some of
22 these funds like proposition 13, and you want to
23 get major funding, you need to come up with major
24 funding on your own, which is called matched
25 funding, in order to get those funds.

1 So, it's very difficult to do. And one
2 example is the Elkhorn Slough. The Elkhorn Slough
3 Foundation put together a conservation plan for
4 the Elkhorn Slough watershed, and for years that
5 conservation plan sat on the shelf. And they were
6 able to get minor funding, much of it through our
7 office. But, again, it was in the \$50,000,
8 \$100,000 range.

9 But what they needed was funding in
10 excess of \$20 million. On that project the
11 Regional Board and the Energy Commission chose to
12 do a habitat enhancement fund, and selected the
13 Elkhorn Slough Foundation to manage that fund,
14 which is \$7 million.

15 And as of about a month ago the Elkhorn
16 Slough Foundation has leveraged that into \$21
17 million. And they now have multiple projects that
18 they are moving forward on. And it involves
19 thousands of acres of purchase, an easement and
20 hundreds of acres of restoration in the slough.

21 So, it does work, and it can work if
22 adequate funds are provided.

23 Also, habitat enhancement is allowed
24 under section 316(b) of the Clean Water Act.
25 There are other cases where habitat enhancement

1 has been used. The new regulations for new power
2 plants specifically include habitat enhancement as
3 an option.

4 The proposed regulations for existing
5 facilities which, if they are adopted, would apply
6 to this project also allow habitat enhancement.

7 So which option is best for the estuary?
8 This is a question I put to our consultants. And
9 I tried to put them on the spot and ask them this
10 question.

11 And they have responded that given all
12 the information that we have at this time they
13 believe that the habitat approach is the best
14 option for the estuary. Not the best option for
15 Duke Energy, not the best option for Regional
16 Board Staff or CEC Staff or CAPE, the best option
17 for the estuary. And that's what we're after.

18 So, that's it, that concludes our
19 presentation.

20 HEARING OFFICER FAY: Thank you. And
21 will you be able to print out in the same order
22 that it was presented today your PowerPoint --

23 MR. THOMAS: Yes.

24 HEARING OFFICER FAY: -- presentation?

25 MR. THOMAS: Yes.

1 HEARING OFFICER FAY: And get that
2 docketed and served on all the parties --

3 MR. THOMAS: Sure.

4 HEARING OFFICER FAY: -- on the proof of
5 service list?

6 MR. THOMAS: Yes.

7 HEARING OFFICER FAY: Okay. And that
8 PowerPoint presentation we will designate as
9 exhibit 313. And at this time would you like to
10 move into the record your draft NPDES permit,
11 which is exhibit 312 and your PowerPoint
12 presentation, exhibit 313?

13 MR. THOMAS: Yes.

14 HEARING OFFICER FAY: All right, is
15 there objection to receiving those? Hearing none,
16 so moved. Those are entered into the record.

17 Thank you. Are you and your panel
18 available for questions?

19 MR. THOMAS: Yes.

20 HEARING OFFICER FAY: Okay, keeping in
21 mind what I said earlier, that we are not
22 litigating the ultimate question of the NPDES
23 permit, that is for the Water Board to do. And
24 even if we were, this is the staff draft, not the
25 Water Board decision.

1 So, today's focus is primarily for
2 clarification and understanding about what you've
3 heard today.

4 And so keeping in mind, also, the
5 approximately half-hour limit on the parties --
6 actually what I think we'll do before we get into
7 cross is take a very brief break now. And we will
8 start -- we'll be back on the record in ten
9 minutes. So please be in your seat within ten
10 minutes.

11 (Brief recess.)

12 HEARING OFFICER FAY: Mr. Ellison, do
13 you have questions for the Water Board panel?

14 MR. ELLISON: Yes, just a few.

15 (Pause.)

16 HEARING OFFICER FAY: Can we get Dr.
17 Cailliet and Michael Thomas, please? Let's go off
18 the record.

19 (Off the record.)

20 HEARING OFFICER FAY: Back on the
21 record. Mr. Ellison.

22 MR. ELLISON: Thank you, Mr. Fay.

23 //

24 //

25 CROSS-EXAMINATION

1 BY MR. ELLISON:

2 Q Good morning, Mr. Thomas and Dr.
3 Haltiner and Dr. Cailliet.

4 Mr. Thomas, let me just begin by asking
5 you this. The range of \$12- to \$25 million that
6 is set forth in the draft NPDES permit, I
7 understand from the presentation, represents --
8 the \$12 million represents the cost of reducing
9 sediment under the TMDL program to a 42 percent
10 level; and the \$25 million represents the cost of
11 achieving, I believe, a 50 or 52 percent
12 reduction, is that correct?

13 MR. THOMAS: Yes.

14 MR. ELLISON: Now, those levels of
15 sediment reduction are not necessarily the same
16 thing as what is needed to offset the effects of
17 the power plant, correct?

18 MR. THOMAS: Correct.

19 MR. ELLISON: So it would be an apples
20 and oranges comparison to compare those numbers to
21 numbers which are intended to measure the amount
22 of funding necessary to offset the impacts of the
23 power plant?

24 MR. THOMAS: Yes. For instance, if you
25 used Duke Energy's habitat enhancement proposal,

1 you came up with \$12.5 million for the biomass
2 conversion method. If that method were valid and
3 acceptable by the independent scientists, then
4 that would be more direct.

5 MR. ELLISON: And I understand that the
6 Regional Board Staff is still working on that
7 second question of what's the right level to
8 offset the power plant, is that fair?

9 MR. THOMAS: The funding amount?

10 MR. ELLISON: Yes.

11 MR. THOMAS: Yes.

12 MR. ELLISON: And let me ask, I'm going
13 to address my questions to you, Mr. Thomas, and
14 feel free to refer them to the other members of
15 the panel as you think appropriate.

16 Is it a reasonable assumption that the
17 ongoing loss of habitat due to sedimentation
18 decreases larval production in numerous species?

19 DR. CAILLIET: Yea, I would say for the
20 species that we're talking about that live in that
21 tidal level that is being in-filled with sediment,
22 and therefore not inundated with seawater as
23 regularly, that those habitats are no longer
24 available for those type of fishes, and therefore
25 there are fewer of them that could produce larvae.

1 MR. ELLISON: And do you believe that
2 it's also a reasonable assumption that the
3 preservation or enhancement of suitable habitat,
4 given the existing reproduction capacity of the
5 species will be sufficient to insure that the
6 habitats will be occupied?

7 DR. CAILLIET: You're going to have to
8 restate the first part of that question, or I can
9 restate it for you.

10 (Laughter.)

11 DR. CAILLIET: If you enhance habitat
12 such that it is suitable for those fishes to live,
13 occupy and survive it will enhance their
14 populations.

15 Now is that exactly what you asked?
16 Because the first part I can't remember what you
17 said.

18 MR. ELLISON: Let me rephrase --

19 DR. CAILLIET: -- assumption, I lost --

20 MR. ELLISON: I'm sure you can phrase it
21 better than I can.

22 DR. CAILLIET: I'm not good at
23 legalese --

24 MR. ELLISON: Well, I'm not trying to
25 speak legalese. The question I'm asking is given

1 what you know about the reproductive capacity of
2 the species that we're concerned about, do you
3 believe that that capacity is sufficient to allow
4 the occupation of preserved or enhanced suitable
5 habitat --

6 DR. CAILLIET: Oh, I see what you're
7 saying. Yes, I do. I think that there are
8 considerable numbers of larvae that probably don't
9 make it despite the power plant being there.

10 And therefore, if there was habitat made
11 available to them that was suitable,
12 physiographically and everything else, that those
13 larvae would most likely be able to occupy
14 additional habitat.

15 MR. ELLISON: Dr. Cailliet, you
16 mentioned two other California estuaries, the San
17 Elijo, if I'm pronouncing these right, San Elijo
18 and Los Peñasquitos.

19 DR. CAILLIET: Yes.

20 MR. ELLISON: Is the type and abundance
21 of fish and crab larvae in those estuaries similar
22 to that in Morro Bay?

23 DR. CAILLIET: I can't speak for the
24 crab larvae, but I presume that at least several
25 of the species would be the same. The adults

1 would be the same.

2 As far as the fishes are concerned
3 there's a distinct difference in the total fish
4 assemblage in southern versus northern California,
5 the -- conception being the typical breakdown.

6 But the arrow goby, --, the shadow goby,
7 I don't believe the cheekspot does live much north
8 of Point Concepcion. But the two dominant ones,
9 the arrow goby, for sure, they're densities, I
10 would expect them to be as high, if not higher, up
11 here.

12 So, yes, they're equivalent, but there
13 are some species differences, mostly in the rarer
14 one.

15 MR. ELLISON: Is there an entrainment
16 source similar to the Morro Bay Power Plant at
17 either of those estuaries?

18 DR. CAILLIET: Not that I know of.

19 MR. ELLISON: With respect to your
20 monitoring proposals, as you understand Duke's
21 proposal, could the NGO adopt some of the ideas
22 that you've put forward this morning?

23 DR. CAILLIET: In terms of monitoring?

24 MR. ELLISON: Yes.

25 DR. CAILLIET: Oh, certainly. But not

1 for the price that was listed. I can't remember
2 what it was, but it was pretty small.

3 MR. ELLISON: The next question I'd like
4 to ask you is it's my understanding that there is
5 an important conceptual distinction between
6 preserving existing occupied habitat versus
7 restoring debilitated habitat.

8 Do you agree that that's an important
9 distinction?

10 DR. CAILLIET: Yes.

11 MR. ELLISON: And would you agree that
12 the issues related to restoring debilitated
13 habitat are quite different than the issues
14 related to preserving already occupied habitat?

15 DR. CAILLIET: Yes.

16 MR. ELLISON: Lastly, I understand that
17 your monitoring proposal, and please correct me if
18 I've misunderstood, --

19 DR. CAILLIET: Okay.

20 MR. ELLISON: -- but from what you
21 presented I got the impression that what you were
22 basically trying to monitor was the occupation of
23 particular habitat in the Bay.

24 For example, if you were to restore an
25 area of the Bay that you would be monitoring

1 whether the species you cared about had occupied
2 that particular habitat, is that correct?

3 DR. CAILLIET: Yes. First of all, I
4 didn't propose a monitoring program. I provided
5 some ideas of how one could start to construct
6 such a program. So I'd really like to make that
7 distinction, because this is at the stage
8 basically just ideas that we've come up with
9 talking to people who are doing similar things in
10 southern California.

11 And if you recall my presentation, it
12 was two-pronged. The first prong was at the
13 ecosystem community level using some physiographic
14 and biological traits such as densities and
15 diversity of fishes, invertebrates, algae,
16 vascular plants, et cetera.

17 And the second prong was directly
18 focused at the informal fishes, mainly gobies,
19 that have been so hard to sample as adults, that
20 are so poorly understood except that we know from
21 almost every estuary where there have been fish
22 larvae sampled that they're very abundant because
23 we get their larvae in our samples.

24 So, I've restated what you stated. And
25 now I need to figure out what you asked me.

1 (Laughter.)

2 DR. CAILLIET: The answer is both of
3 those things would be important to do, not just
4 one of them. But I think one of the more
5 important things to do would be to find out what
6 habitat enhancement does for gobies that live in
7 that tidal height that is being reduced by
8 sedimentation and the present habitats which are
9 housing adults that are producing larvae, some of
10 which are being killed by the power plant.

11 MR. ELLISON: Would you agree that the
12 density and distribution of larvae in the Bay
13 generally, throughout the Bay, is subject to many
14 factors other than the performance of particular
15 habitat or the entrainment of the power plant?

16 DR. CAILLIET: You've asked me two
17 questions there. One is are the --

18 MR. ELLISON: In that case I should
19 rephrase it.

20 DR. CAILLIET: Okay, please do, because
21 you mentioned the adult survivorship or the larval
22 survivorship to natural causes versus those of the
23 power plant entrainment. I think that's what
24 you're asking.

25 MR. ELLISON: No, let me --

1 DR. CAILLIET: Okay.

2 MR. ELLISON: -- try and do a better
3 job. The question I'm asking is isn't it true
4 that in addition to the power plant and any
5 mitigation for the power plant there are many
6 other things that affect the density of the
7 species in the Bay generally?

8 DR. CAILLIET: Yes.

9 MR. ELLISON: Okay. And lastly, we
10 spoke a moment ago about the distinction between
11 preservation of habitat versus restoration of
12 habitat.

13 Is it fair to say that with respect to
14 the preservation of existing already-occupied
15 habitat that it would be inappropriate to measure
16 the success of that type of program by looking for
17 an increase in the population?

18 DR. CAILLIET: Yes, I agree with you.
19 In other words, if you reduce sedimentation, kept
20 the present habitats that were in the right tidal
21 height for those gobies to occupy, would those
22 gobies be enhanced? No, they would, I would
23 presume, maintain their present densities.

24 They would also be very useful as
25 controls versus areas if you restored more areas

1 that might have been filled in, to compare.

2 So, in other words, monitoring those
3 would be useful as well, to see what the natural
4 changes might be.

5 MR. ELLISON: That's all I have. Thank
6 you very much to all of you.

7 DR. CAILLIET: You're welcome.

8 HEARING OFFICER FAY: That's all you
9 have for the panel?

10 All right. Energy Commission Staff.

11 Is your microphone turned on?

12 MS. HOLMES: Okay, thank you. I'll just
13 start with Dr. Cailliet, since you're already
14 warmed up.

15 (Laughter.)

16 MR. SPEAKER: Interesting way to put it.

17 (Laughter.)

18 CROSS-EXAMINATION

19 BY MS. HOLMES:

20 Q There was a talk just a few moments ago
21 about restoring habitat, do you recollect that
22 discussion?

23 DR. CAILLIET: Yes.

24 MS. HOLMES: Do you, in fact, know
25 whether or not or how gobies behave in restored

1 habitat? In other words, do we know whether or
2 not it's different from the way in which they
3 behave in natural habitat that hasn't --

4 DR. CAILLIET: No, no, we do not. No.

5 MS. HOLMES: So do we know whether or
6 not gobies would be able to, I believe the word
7 you used, were live, occupy and reproduce, the
8 same way in restored habitat as we believe they do
9 in natural habitat?

10 DR. CAILLIET: No, we don't. But that
11 would be part of the thing that you would study, I
12 presume.

13 I can amplify that a little bit. There
14 have been some of the best studies, most of them
15 Japanese, but Ed Brothers did some of this, as
16 well, have used laboratory conditions to bring
17 gobies into sediment. They've given them choices
18 of sediment size, whether it's fine or coarse.
19 And given them different water characteristics.

20 And actually they have survived and they
21 have burrowed in what they presume is natural
22 behavior by watching them in sort of ant-farm-like
23 goby habitats, you know what I mean?

24 MS. HOLMES: Yes.

25 DR. CAILLIET: I presume if they can

1 live in that kind of condition, if you restore the
2 habitat properly that probably you could make it
3 conducive to them behaving at least close to
4 similar.

5 MS. HOLMES: So the key then is -- it
6 sounds to me like there are two variables, or two
7 uncertainties here. One has to do with we don't
8 know what it would take at this point to make sure
9 that the habitat that was restored is suitable, as
10 you have defined it.

11 And then secondly, you would want to do
12 some sort of empirical testing or data collection,
13 if you will, to determine whether or not the
14 hypothesis that they do perform similarly as they
15 do in natural functions would, in fact, occur?

16 Is that --

17 DR. CAILLIET: Yes, I agree with both
18 those statements. But I also would like to point
19 out, and I don't have direct data on this, but a
20 lot of this work that's being done by the people
21 who showed me that technique, and it's their work,
22 not mine, they are using that in San Dieguito
23 Lagoon and they will be using it in other
24 estuaries that are in the process of being
25 restored.

1 MS. HOLMES: So there may be --

2 DR. CAILLIET: -- know more as well, you
3 know, -- a lot of this is unpublished, most of it
4 is unpublished, so I sort of dug up what I could
5 so far.

6 MS. HOLMES: So there currently isn't
7 information, but you think as this process
8 unfolds, more data about the success of
9 restoration habitat, restoration efforts on gobies
10 may develop?

11 DR. CAILLIET: I'm certain it will
12 develop.

13 MS. HOLMES: There was a question to you
14 from applicant's counsel about whether or not it
15 would be appropriate to look for an increase in
16 densities or maintaining present densities. Do
17 you recollect that discussion?

18 DR. CAILLIET: Yes.

19 MS. HOLMES: If I can put the two
20 discussions together, the one that we just had and
21 the one that you had earlier this morning with
22 counsel, it appears to me that what the Board is
23 saying is that you're trying to maintain present
24 densities of species that are entrained, and that
25 you believe that restoration -- I know there's a

1 separate set of questions having to do with
2 prevention of sedimentation -- but restoration
3 activities may do that, but we don't know that
4 currently?

5 DR. CAILLIET: I can't answer for the
6 Board. I can just answer for what I think might
7 be reasonable.

8 MS. HOLMES: Okay, that would be fine.

9 DR. CAILLIET: And Michael might want to
10 answer first, I don't know. What do you think,
11 Michael?

12 MR. THOMAS: I'm not sure I understood
13 the question, so I'd have to --

14 MS. HOLMES: Well, let the person who
15 understood answer it, then.

16 DR. CAILLIET: Well, I'm not exactly
17 sure what you're getting at, but I am convinced
18 that sedimentation reduction will at least keep
19 the status quo the way it is better than if we did
20 nothing. That's one answer.

21 The other answer is to increase the
22 amount of available habitat. For gobies you're
23 going to have to provide more water circulation,
24 and therefore modify the sediment in some way that
25 enhances that.

1 MS. HOLMES: Okay, thank you. And,
2 Michael, why don't I ask you some questions now
3 then.

4 I'm still trying to understand what the
5 Regional Board believes is needed to offset the
6 effects of the power plant. There was a
7 discussion earlier this morning that you had with
8 counsel about the range of dollars that had been
9 listed, and that one would result in a certain
10 level of reduction in sedimentation. And that the
11 higher one would result in greater reduction of
12 sedimentation.

13 I'm just trying to understand what
14 criteria you're applying to this project to
15 determine what level of reduction of sedimentation
16 is appropriate.

17 MR. THOMAS: Well, our TMDL document,
18 which I think you're familiar with, calls for a 50
19 percent reduction in sedimentation. And so we
20 felt that we should do some work on figuring out
21 how much it would cost to achieve that and what
22 the benefits of that would be.

23 And the way I'm looking at it is --
24 myself, not the Board but myself -- is that if we
25 do sediment reduction, if we can achieve

1 significant sediment reduction, then it will have
2 a major benefit on the estuary.

3 And if that benefit is much greater than
4 the impact caused by the power plant, then that's
5 the approach we should take.

6 I can't say that an exact amount of
7 sedimentation is required, like 32 percent or 12
8 percent or whatever. We can only shoot for a
9 general amount.

10 And so 50 percent is the amount we'd
11 like to achieve via the TMDL and the dollar range
12 associated with that is approximately \$12- to \$25
13 million. And the sedimentation reduction range
14 for that dollar amount is 42 to 52 percent.

15 MS. HOLMES: How did you determine that
16 that was going to provide a benefit that was
17 greater than the impact that's being caused by the
18 power plant?

19 MR. THOMAS: We compared the impact
20 caused by the power plant in terms of acre years
21 to the benefit of sediment reduction in the same
22 units.

23 MS. HOLMES: Is this the discussion in
24 your draft permit? I think it starts on page 18
25 with respect to acre years. Is that the general

1 discussion?

2 MR. THOMAS: I'm sure.

3 MS. HOLMES: Before we move to that,
4 which I do want to get to in a moment, I want to
5 ask you a couple of questions about the
6 relationship to the TMDL program.

7 You said that the TMDL program calls for
8 a 50 percent reduction in sedimentation?

9 MR. THOMAS: Yes.

10 MS. HOLMES: And wouldn't that be true
11 if the power plant weren't here? Wouldn't it also
12 be calling for a 50 percent reduction in
13 sedimentation?

14 MR. THOMAS: Yes.

15 MS. HOLMES: Does the power plant --

16 MR. THOMAS: No.

17 MS. HOLMES: -- cause sedimentation?

18 MR. THOMAS: No.

19 MS. HOLMES: My understanding, and it
20 is -- I'm not an expert in the TMDL program. I
21 know there are probably people in this room who
22 are. But my understanding is that the Board sets
23 an objective or a goal for a certain, in this case
24 it's levels of sediment reduction, and you've
25 identified a three-tier program?

1 MR. THOMAS: Yes.

2 MS. HOLMES: And the first tier is
3 voluntary actions?

4 MR. THOMAS: Yes.

5 MS. HOLMES: And then after that you may
6 go to regulatory actions, enforcement actions?

7 MR. THOMAS: Yes.

8 MS. HOLMES: In the event, under the
9 TMDL program, isn't the 50 percent reduction that
10 identifies required, even if Duke were not
11 requesting a permit from you?

12 MR. THOMAS: Yes.

13 MS. HOLMES: So is this just a question
14 of who pays for these reductions?

15 MR. THOMAS: Partly, yes.

16 MS. HOLMES: Okay, thank you. I wanted
17 to ask a question about the acre years, and I
18 apologize for not understanding it very clearly.

19 It looks to me as though on page, I
20 believe it's 23, your draft permit, you
21 identified, if you will, an impact in acre years
22 that ranges from roughly 19,500 thousand acre
23 years to almost 38,000 acre years. Am I reading
24 the document correctly?

25 MR. THOMAS: Yes, I think I said 20,000

1 to 38,000 acre years.

2 MS. HOLMES: Thanks. And if you look at
3 page 19 you have a little table there that shows
4 what a 50 percent reduction provides in terms of
5 gain of acre years.

6 MR. THOMAS: Yes.

7 MS. HOLMES: If I put those two together
8 is it correct to say that what you're proposing is
9 that the benefit from the habitat program would
10 accrue, if you will, somewhere between 150 and 200
11 years from the time that the measures are
12 implemented?

13 MR. THOMAS: Which part are you --

14 MS. HOLMES: I'm looking at the --

15 MR. THOMAS: What page?

16 MS. HOLMES: 19.

17 MR. THOMAS: Yes.

18 HEARING OFFICER FAY: The copy that we
19 made available shows figure 1 on page 20. And no
20 chart at all on page 19.

21 MS. HOLMES: It simply says, bolded,
22 underlined at the top, "time"; and then the next
23 column over is "critical habitat gained."

24 Underneath time is 100 years, 150 years,
25 et cetera.

1 MR. THOMAS: Page 19?

2 MS. HOLMES: I'm sorry, this is the copy
3 that I was emailed.

4 HEARING OFFICER FAY: Okay, that's fine.

5 MS. HOLMES: Thank you.

6 And I'm just trying to ascertain whether
7 or not the -- I'm trying to look at the benefit
8 that you say is required to offset the power plant
9 impacts in acre years. And when I put together is
10 on page 23 about the number of acre years with
11 the, I guess I'll call it a table, on page 19, I
12 read them together to reach the conclusion that
13 the benefit from the HEP that is designed or been
14 identified as required to compensate for the power
15 plant effects, would take 150 to 200 years. And
16 I'm just trying to understand that that's a
17 correct reading.

18 MR. THOMAS: I'm not sure how you're
19 interpreting it, but I would say that the benefit
20 of sediment reduction to do what we're proposing,
21 the benefit of sediment reduction increases over
22 time. And if these projects were implemented
23 within say the next several years, then that
24 benefit would accrue over time.

25 At 100 years you'd have a certain

1 benefit. At 150 years you'd have a certain
2 benefit. And it increases over time.

3 Now, the table that you refer to on page
4 19 just shows that at about 400 years you would
5 have achieved an 84,000 acre year gain.

6 MS. HOLMES: Right, and if the power
7 plant needs, as you've indicated, somewhere
8 between 20- and 38-thousand acre years, it appears
9 that that would happen somewhere between 150 to a
10 little bit more than 200 years?

11 MR. THOMAS: Yes.

12 MS. HOLMES: Okay, thank you. I didn't
13 mean to belabor that.

14 There's been some discussion this
15 morning about the different types of projects that
16 the applicant has proposed, both restoration and
17 sedimentation control projects.

18 Given your interest in reducing
19 sedimentation into Morro Bay, do you have a
20 preference for the latter type of program?

21 MR. THOMAS: The latter being what?

22 MS. HOLMES: Sedimentation control.

23 MR. THOMAS: Versus?

24 MS. HOLMES: Restoration.

25 MR. THOMAS: I think that they're both

1 important, but we have to do sedimentation
2 reduction before we do in situ restoration,
3 because otherwise from my view it would be digging
4 holes in the ground and watching them fill back in
5 with sediment. So we've got to control the
6 sediment problem, and then work on in situ
7 restoration.

8 MS. HOLMES: And so what we're talking
9 about here is not replacing larvae that are killed
10 by the power plant, it's simply preventing loss of
11 existing habitat?

12 MR. THOMAS: Primarily it's preventing
13 loss of existing habitat. There will be benefits
14 from these projects, but I don't think that we
15 could measure a larvae-for-larvae replacement or
16 anything close to that.

17 MS. HOLMES: And finally, I have one
18 very brief question of Dr. Haltiner. And it has
19 to do with a citation that was provided in an
20 exhibit that hasn't been identified yet. It's
21 Duke Energy testimony rebuttal to staff regarding
22 habitat enhancement program.

23 Perhaps it would be appropriate to
24 identify it if -- a citation to Dr. Haltiner's
25 work that I wanted to ask him about.

1 HEARING OFFICER FAY: Okay. Is that on
2 the exhibit list?

3 MS. HOLMES: I would hope so.

4 MR. THOMAS: We're not sure what you're
5 referring to.

6 MS. HOLMES: I believe it's in exhibit
7 298, is that correct, is that the number you gave
8 that, Gary?

9 HEARING OFFICER FAY: I don't have the
10 tentative list right in --

11 MS. HOLMES: Let me read the sentence
12 and --

13 MR. THOMAS: What page is it on, please?

14 MS. HOLMES: It's on page 11. It simply
15 refers to a study -- there's a citation to a study
16 that you completed in 2002.

17 Are you familiar --

18 DR. HALTINER: No, I mean I haven't read
19 this particular --

20 MS. HOLMES: Why don't I read you the
21 sentence and then ask the questions very quick. I
22 don't want to belabor this.

23 It says, "The scientific" --

24 PRESIDING MEMBER KEESE: What page are
25 we on?

1 MS. HOLMES: I'm on page 11. It says,
2 "The scientific connection between the entrained
3 species and the species that will occupy restored
4 habitat and habitat that is protected from in-
5 filling is found in the recent studies performed
6 by Jocelyn, 1997, and Haltiner, 2002."

7 And I'm just wanting to ask you whether
8 or not the study that you did in 2002 identified
9 any specific species and/or made numerical --
10 collected numerical numbers of species in various
11 habitats.

12 DR. HALTINER: Okay, could you say where
13 on page 11 you were reading from? I'm sorry.

14 MS. HOLMES: It's the next-to-the-bottom
15 paragraph, second sentence up.

16 DR. HALTINER: Yeah, our study did not,
17 the PWA study directly would not have provided any
18 information on biological species. Our work was
19 on physical habitat and elevations zones.

20 MS. HOLMES: Okay, thank you.

21 HEARING OFFICER FAY: And in response to
22 your question, counsel, that is identified as
23 exhibit 298 in the tentative exhibit list, the
24 Duke rebuttal to staff.

25 MS. HOLMES: And I apologize, I have one

1 last question of Michael Thomas with respect to
2 the discussion about monitoring costs.

3 You've indicated both in the draft
4 permit and here today that the amount of money
5 that has been proposed for monitoring is likely to
6 be insufficient pursuant to the Board's criteria,
7 is that --

8 MR. THOMAS: Yes.

9 MS. HOLMES: And is it your
10 understanding that additional funds for monitoring
11 would be provided within the \$12- to \$25 million
12 estimate that you have provided, or whether it
13 would be in addition to that?

14 MR. THOMAS: In addition to. Whatever
15 number we come up with that we think is
16 appropriate for projects, it would be an
17 additional amount for administration, the
18 independent scientific panel and monitoring.

19 MS. HOLMES: And do you have a range of
20 what that number is or a process for determining
21 what that number will be?

22 MR. THOMAS: Other than what's included
23 in the permit. I think I explained it -- I
24 thought I explained it pretty well in the permit
25 what we thought those numbers should be for

1 monitoring and the scientific panel and
2 administration.

3 MS. HOLMES: Okay.

4 MR. THOMAS: Did you want me to clarify,
5 try to clarify those numbers?

6 MS. HOLMES: Perhaps it would be -- if
7 you could do it very very quickly.

8 MR. THOMAS: Well, as far as the
9 scientific panel goes I assumed a certain amount
10 of hours that we would need, and a certain amount
11 of independent scientists and hours that would be
12 needed, and a dollar amount per hour.

13 MS. HOLMES: Can you go to the page
14 number that's you're -- is this in the appendices?

15 MR. THOMAS: It would be on my page 26.
16 Under program funding. I say, "In addition, the
17 discharger shall provide the following annual
18 funding as directed by the executive officer: For
19 administration we're assuming 1 PY, and we
20 normally use, within the Regional Board structure
21 we normally use \$100,000 for one PY. So that's
22 where that number came from. It's our own
23 budgeting.

24 Monitoring \$250,000 a year for the first
25 five years. That number came from a meeting that

1 we had with Dr. Cailliet and Dr. Raimondi where we
2 considered other monitoring programs that were
3 being done, and estimated how much they cost. And
4 mainly this one that I reference here for the San
5 Onofre Nuclear Generating Station monitoring
6 program. The wetlands restoration part of that
7 project.

8 And then the scientific panel, I have
9 \$100,000 --

10 MS. HOLMES: That's clear.

11 MR. THOMAS: Okay.

12 MS. HOLMES: Yeah, that's clear. Thank
13 you. Those were all the questions that I had.

14 MR. THOMAS: Could I clarify something?
15 I just thought of something --

16 MS. HOLMES: Sure.

17 MR. THOMAS: Caryn, you asked before
18 about the habitat enhancement proposal that's in
19 the permit, and mentioned the word required.

20 And I'm not an attorney but it's my
21 understanding that whatever agreement we come to
22 with Duke Energy, that is an agreement. It's
23 something they agree to do, not necessarily
24 something that we require them to do up front.

25 Because section 316(b) of the Clean

1 Water Act, as the way it's currently written for
2 existing power plants, it doesn't necessarily
3 allow us to require monitoring. But we can come
4 to an agreement with the applicant on
5 monitoring, -- monitoring on mitigation.

6 So I just wanted to clarify, used the
7 word required, and our attorney has been careful
8 not to use the word required with reference to the
9 habitat enhancement program.

10 MS. HOLMES: But the expectation you
11 have is that those kinds of conditions would be
12 included in an agreement, a legally enforceable
13 agreement that you would reach with the applicant?

14 MR. THOMAS: Yes.

15 MS. HOLMES: Thank you.

16 HEARING OFFICER FAY: Okay.

17 Commissioner Boyd has a question of Mr. Thomas.

18 COMMISSIONER BOYD: Mr. Thomas, while
19 we're on the subject of monitoring, and I had
20 noted your calculations on page 26. My question
21 is does this estimate of monitoring costs, and
22 does your idea of a monitoring program reflect Dr.
23 Cailliet's opinions as to what it would take to do
24 a decent monitoring job?

25 MR. THOMAS: Yes, I think it does.

1 COMMISSIONER BOYD: Thank you.

2 MR. THOMAS: Dr. Cailliet and Dr.
3 Raimondi, our other independent consultant.

4 HEARING OFFICER FAY: All right, now
5 we'll move to the City of Morro Bay. Do you have
6 any questions, City, --

7 MR. SCHULTZ: Yes.

8 HEARING OFFICER FAY: -- regarding the
9 NPDES permit?

10 MR. SCHULTZ: I just have one question.

11 HEARING OFFICER FAY: Okay.

12 CROSS-EXAMINATION

13 BY MR. SCHULTZ:

14 Q On page 26 of your draft report you
15 require a one-time funding that will be payable
16 within 120 days of the adoption of the order.

17 MR. THOMAS: Yes.

18 HEARING OFFICER FAY: Excuse me, Mr.
19 Schultz, could you identify yourself, --

20 MR. SCHULTZ: Yes.

21 HEARING OFFICER FAY: -- the City?

22 MR. SCHULTZ: Robert Schultz, City
23 Attorney for the City of Morro Bay.

24 MR. SCHULTZ: That's correct?

25 MR. THOMAS: Yes.

1 MR. SCHULTZ: And Duke's plan calls for
2 the HEP funding to be paid at commercial
3 operations, you're aware of that?

4 MR. THOMAS: Yes.

5 MR. SCHULTZ: Are you against that type
6 of funding occurring at commercial operation date?

7 MR. THOMAS: Yes, based on direction
8 from our Board at a previous board meeting, they
9 preferred to see -- the comments we received are
10 that the board members would prefer to see the
11 funding provided up-front.

12 MR. SCHULTZ: Okay, thank you.

13 HEARING OFFICER FAY: All right. Mr.
14 Naficy for CAPE.

15 MR. NAFICY: Good morning; I'm Babak
16 Naficy on behalf of the Coastal Alliance. I have
17 a few questions of the panelists, but I'm not
18 going to direct it specifically. You guys can
19 choose who's going to answer what.

20 CROSS-EXAMINATION

21 BY MR. NAFICY:

22 Q Dr. Cailliet just described some new and
23 rather exciting new techniques for establishing
24 what I would take would be great technique to
25 establish baseline conditions for the level of

1 occupancy of various strata within the Bay.

2 And, Michael, I think the question goes
3 to you. Are you -- is the Board going to require
4 some level of baseline analysis of existing
5 habitat before the project even goes forward?

6 MR. THOMAS: The way the permit is
7 written at this time, the administrative draft, is
8 that monitoring funds would be required within, I
9 think, 120 days of permit adoption. So we would
10 like to begin monitoring as soon as possible after
11 that date.

12 MR. NAFICY: Right, I'm not sure if that
13 answers my question. I mean is there a systematic
14 something akin to the 316(b) study plan to
15 establish a baseline across the board to
16 understand the current level of densities and
17 diversity within the Bay?

18 MR. THOMAS: The 316(b) report didn't do
19 that.

20 MR. NAFICY: I understand. Maybe that
21 was a red herring. I just meant something more
22 systematic rather than, you know, to characterize
23 the Bay and know what levels of, you know, what
24 densities and what diversity of species we have in
25 the Bay to be able to gauge the, you know, long-

1 term effectiveness of various restoration measures
2 or sediment erosion control measures.

3 MR. THOMAS: I think the answer is yes,
4 but I have to qualify it and say that we would
5 implement a comprehensive monitoring program as
6 soon as possible after receiving those funds. And
7 it would be dependent, you know, when we implement
8 it would be dependent on actually receiving those
9 funds and getting the independent scientific panel
10 established, and getting direction from that
11 panel.

12 MR. NAFICY: I guess my question is also
13 whether that level of, you know, establishing the
14 baseline monitoring is included in the type of
15 monitoring that you've identified on page 26 of
16 the draft order.

17 MR. THOMAS: Yes, the \$250,000 a year
18 would include -- it includes all monitoring
19 associated with the project.

20 MR. NAFICY: One of the questions that
21 has come up for me over the course of today's
22 hearing and then reviewing the draft is how the
23 calculations was derived to estimate the \$12- to
24 \$24 million delivering something -- I guess the
25 figure today was 42 percent sediment reduction, is

1 that correct?

2 MR. THOMAS: Yes.

3 MR. NAFICY: Is that number correct?

4 MR. THOMAS: Forty-two to 52.

5 MR. NAFICY: Forty-two to 52. And I
6 want to refer to the PWA report that was also made
7 an exhibit to these hearings. And I tried to
8 understand these charts, these tables. For
9 example, take table 4-15. You got that?

10 MR. THOMAS: We've got it here.

11 MR. NAFICY: Okay.

12 MR. THOMAS: Dr. Haltiner has it in
13 front of him.

14 MR. NAFICY: The way I read this chart
15 it says low-end cost scenario Chorro Creek
16 watershed sediment erode reduction, and the bottom
17 there's a total and it says 30,721 and it says 27
18 percent low-end cost to Morro Bay total sediment
19 reduction.

20 Now, how does this figure relate to your
21 estimated 12 million for 42 percent?

22 MR. ELLISON: I'm sorry, Mr. Naficy, can
23 you just tell me again where you are in the
24 document?

25 MR. NAFICY: It's table 4-15, the PWA

1 report.

2 MR. ELLISON: Do you have a page number
3 or --

4 MR. NAFICY: There really isn't a page
5 number. It's towards the back.

6 DR. HALTINER: One of the things I
7 wanted to mention is also on the panel today is
8 Dr. Ken Schwarz from PWA, who also worked on this
9 study. And if it's acceptable to the Commission,
10 we would have him able to respond, as well, on the
11 details of our work.

12 HEARING OFFICER FAY: Well, let's hold
13 off until that's really essential. Have we got
14 this located, and it's the last ten pages or so in
15 the fold-outs of the tables.

16 Can we get a reference to the exhibit
17 number for the PWA report?

18 I believe it's listed in the --

19 MR. ELLISON: I believe it's 288.

20 HEARING OFFICER FAY: Right, okay,
21 exhibit 288, yes.

22 And what was the question?

23 MR. NAFICY: I'm trying to understand
24 the relationship between this, what appears to be
25 a low-end cost estimate for one watershed for 25

1 percent sediment load reduction and \$30 million to
2 the estimate of 42 percent sediment load reduction
3 for the entire estuary at a cost of \$12 million.

4 I'm trying to reconcile those two
5 estimates.

6 HEARING OFFICER FAY: Can you do that
7 with the panel that's available, or do we have to
8 swear another witness?

9 DR. HALTINER: I think you'd get a
10 little more detail from the other witness if
11 you're willing to do that.

12 HEARING OFFICER FAY: All right. Please
13 identify yourself, and stand to be sworn by the
14 court reporter.

15 Whereupon,

16 KENNETH SCHWARZ

17 was called as a witness herein, and after first
18 having been duly sworn, was examined and testified
19 as follows:

20 DR. SCHWARZ: My name is Ken Schwarz.
21 I'm a Senior Associate of Phil Williams and
22 Associates. And I was Project Manager of this
23 work.

24 HEARING OFFICER FAY: When you say
25 project manager, was that on exhibit 288, the

1 Morro Bay sedimentation study?

2 DR. SCHWARZ: Correct.

3 HEARING OFFICER FAY: All right.

4 DR. SCHWARZ: Okay, to address the
5 question at hand, and if I could just kind of
6 perhaps rephrase the question, that is what --
7 there's apparent inconsistency between two cost
8 estimates from the two different exhibits.

9 First let me focus on the PWA report,
10 what's been identified as table 4-15. And perhaps
11 to best understand the role of this table, I'd
12 like to put it into context for this whole report.

13 As Dr. Haltiner described in the
14 presentation, we looked at erosion control and
15 sediment reduction approaches in the watershed,
16 kind of a comprehensive format by first
17 identifying sources in the upper headland areas.
18 Did the same with the tributary channels lower
19 down in the watershed, ultimately lead to the
20 estuary, itself.

21 And we looked at these across both
22 Chorro and Osos watersheds. The cost estimates
23 that you see in tables 4-15 reflect this kind of
24 initial comprehensive approach in which we were
25 looking at several types of erosion control

1 methods.

2 In other words, we primarily identified
3 these according to three kind of prongs. There
4 were management issues. So, for example, table 4-
5 15 you may have a management of headland areas or
6 rangeland -- restoration efforts. For example,
7 while we're in the table you may have channel
8 flood plane restoration.

9 And there were in-bay opportunities
10 which are basically off this table.

11 Now, coming back to one point about this
12 table, at the bottom, I just wanted to make this
13 clear, that table 4-15, although in the title of
14 the table it says Chorro Creek Watershed, towards
15 the bottom of the table it includes the Morro Bay
16 watershed totals. It includes Los Osos, as well.
17 So I want to make that point first clear. That
18 the \$30,000,721 value is brought over from Los
19 Osos, as well.

20 Okay, now that that -- I think, is that
21 clear? Okay. Now, the difference between this
22 table, moving to this one, again. The context of
23 this was kind of following our approach at looking
24 at sediment sources and applying treatments
25 comprehensively across these watersheds for those

1 sources, when you come back to these treatments
2 and you can look at the eighth column, there's
3 a -- actually, look at the -- well, it's in
4 several of the columns here.

5 We essentially did kind of an
6 affectivity analysis in looking at these different
7 approaches. And looked at their trapping
8 efficiency. How effective were they at reducing
9 downstream sedimentation compared to what they
10 were, the sediment that was coming in.

11 So, for examples, there may be a check-
12 dam, and we would look at sediment coming into
13 that check-dam, how much that check-dam would
14 hold, how much would pass off to below.

15 And we were integrating all these
16 different treatments and how they were operating
17 in terms of sediment coming in upstream of these
18 particular treatments and what they were passing
19 down below.

20 When we went from table 4-15, which was
21 an initial approach at this, looking at all of our
22 sources and land use types, to table 1 of the PWA
23 memo, we performed an optimization. Whereas, we
24 looked at erosion control methods that seemed to
25 be more effective per dollar value. And we

1 emphasized those more.

2 And that's where you arrive at
3 essentially a higher affectivity in reducing
4 erosion for a lower cost value.

5 MR. NAFICY: I'm sorry, so what do you
6 mean by optimization?

7 DR. SCHWARZ: Okay, in table 1 of the
8 memo there's a column, the fourth column is cost
9 per ton removed.

10 MR. NAFICY: I'm sorry, what do you mean
11 by the memo?

12 DR. SCHWARZ: What I'm referring to is
13 the second table column that refers to the 42
14 percent reduction for the --

15 MR. THOMAS: He's taking about the memo,
16 itself, though. What memo are you referring to?
17 This is supplemental memo to the report.

18 DR. SCHWARZ: Okay. Yes, this is a PWA
19 memo to the Regional Water Quality Control Board
20 from October 24, 2002, and it's from that memo
21 that the cost estimates that were presented today
22 were taken from.

23 HEARING OFFICER FAY: Has that been
24 identified on the tentative exhibits list?

25 MR. THOMAS: I don't know if it's on the

1 exhibit list. I sent it by email to the service
2 list.

3 HEARING OFFICER FAY: Do we have --

4 MR. ELLISON: It is not on the exhibit
5 list.

6 HEARING OFFICER FAY: It's not on the
7 exhibit list. Have you relied on that, Mr.
8 Thomas?

9 MR. THOMAS: Pardon?

10 HEARING OFFICER FAY: Have you relied on
11 that memo?

12 MR. THOMAS: Yes. It's referenced in
13 the draft permit.

14 HEARING OFFICER FAY: Well, could you
15 please fully identify the memo and --

16 MR. NAFICY: I'm not sure if there was,
17 I mean if Michael says it was emailed. I haven't
18 actually read it. I haven't seen this memo.

19 HEARING OFFICER FAY: There seems to be
20 some doubt as to whether it was served. A number
21 of counsel are indicating they haven't received
22 it.

23 MR. ELLISON: We received it by email
24 from Mr. Thomas as he describes, and we do have a
25 copy of it here. If you want to include it in the

1 record we would have no objection to doing so.

2 HEARING OFFICER FAY: Okay.

3 MR. NAFICY: What I recall receiving was
4 a memo regarding the salt drift. Was it in the
5 same email?

6 MR. THOMAS: No, separate.

7 MR. NAFICY: Oh.

8 HEARING OFFICER FAY: All right, Mr.
9 Thomas, would you please identify that --

10 MR. THOMAS: Yes.

11 HEARING OFFICER FAY: -- based on the
12 title on the cover of the memo and the date, and
13 we'll give it an exhibit number.

14 MR. THOMAS: Yes, the date is October
15 24, 2002. It's a memo from Philip Williams and
16 Associates to myself, Michael Thomas, at the
17 Regional Water Quality Control Board. It is
18 regarding revised estimates of habitat loss and
19 project costs for sediment reduction scenarios.

20 And maybe I can shed a little bit of
21 light on this, or some context. I reviewed the
22 main report that Philip Williams and Associates
23 submitted to the Regional Board, which is the
24 report we're discussing, the August 20, 2002
25 report.

1 And I reviewed these tables that are
2 currently the issue that we're talking about. And
3 I didn't understand the tables. So I asked Philip
4 Williams and Associates to give me a better
5 indication, or for me a more clear indication of
6 what it would cost to achieve certain sediment
7 reduction rates.

8 And I specifically said that in the
9 original report, the August report, there are
10 sediment control options that cost a great deal of
11 money but give us a very little benefit, that
12 reduce sediment, a very small amount.

13 I said those are not options for us.
14 For instance, table 4-13 lists a sediment
15 reduction option that reduces sedimentation by 7
16 percent from a specific category and costs \$17
17 million.

18 And in this same table we have an option
19 that would reduce sedimentation by 10 percent and
20 only cost a million dollars.

21 So I said if we are to implement this
22 program we're going to utilize the most efficient
23 sediment control reduction options that are
24 available to us. We're not going to do those
25 options that cost a great deal of money and give

1 us no benefit.

2 So I asked them to optimize the
3 projects, give us an optimized project list, those
4 things that get us the largest bang for the buck.
5 And give me an estimate on that. That's what they
6 did.

7 And so that is what this memo dated
8 October 24, 2002 is. And that memo is referenced
9 in the administrative draft.

10 HEARING OFFICER FAY: Okay, and that
11 memo will be identified as exhibit 314.

12 I'm sorry, Mr. Naficy, go ahead.

13 MR. NAFICY: Yeah, you know, I guess I
14 really need to read the memo to understand the
15 premise of the argument.

16 What I'm looking at in table 4-15 which,
17 until now, was my only point of reference for
18 establishing cost estimates for the sediment
19 reduction measures, I mean I can see how maybe for
20 less money you can get nearly the same amount of
21 sediment reduction.

22 What I'm having difficulty with is how
23 for almost, you know, a third less you can get one
24 and a half times benefit.

25 So, without having the benefit of

1 actually reading how the optimization can actually
2 do that, I am at a bit of a loss.

3 MR. THOMAS: Look at table 4-15, the
4 table you're looking at. At the top of this table
5 we have, on the left-hand side, headland, full
6 slope and gully, all right, in that category for
7 brushland.

8 The first option is listed there, will
9 give you a 5 percent reduction in sedimentation
10 from that category, from brushland, for \$500,000
11 if you were to do that test.

12 The second one listed there will give
13 you a 1 percent reduction in sedimentation, and it
14 will cost \$3 million.

15 What I'm saying is we're not going to do
16 that.

17 MR. NAFICY: Right, so if you pick fewer
18 items surely then the total cost would go down,
19 but so will the estimate of benefit.

20 MR. THOMAS: Well, my understanding is
21 they can do more of that thing that costs less and
22 gives you a bigger bang for the buck. You do more
23 of it. Rather than doing the thing that gives you
24 almost nothing and costs a very large amount of
25 money.

1 MR. NAFICY: I can see why you asked for
2 another memo.

3 (Laughter.)

4 MR. NAFICY: Because I sure as heck
5 don't know exactly what you're talking about. And
6 I guess I'm going to stop talking about it until I
7 read the memo, because do just more of it -- I
8 mean you would think that some level of
9 optimization was done when you have a low and then
10 a high and cost estimate being the document that's
11 supposed to be the definitive analysis of the
12 various subjects.

13 DR. SCHWARZ: The short answer is yes
14 and no. This, again, this cost scenario was
15 following the context that we'd identified, the
16 sediment sources. We were then looking at
17 appropriate sediment reduction approaches to those
18 individual sources.

19 So, for example, in the first area there
20 whether it's headland, hill slope or rangeland or
21 cropland, we did that. At this point we did not
22 want to rule out anything. We thought that would
23 have been incomplete.

24 So we were looking at all these
25 different approaches, whether it was intensive

1 post-fire management, et cetera. And so
2 considering it comprehensively we put a number of
3 things out here and then only after seeing how
4 they compared in their effectiveness, it was then
5 at a secondary level that it was the appropriate
6 time to kind of focus in and optimize.

7 If we had not considered all these
8 things at the outset, we wouldn't have known the
9 difference.

10 MR. NAFICY: Okay, I want to move on.
11 Would it be fair to say, then, that as a result of
12 this optimization process you identified the
13 projects where, to borrow a phrase from one of the
14 Regional Board members, you get the most bang for
15 your buck?

16 MR. THOMAS: Yes.

17 MR. NAFICY: Is that the lowest hanging
18 fruit, is that correct? The ones that you want to
19 do --

20 (Laughter.)

21 MR. NAFICY: -- with the \$12 million?

22 (Laughter.)

23 MR. NAFICY: I'm just using some --
24 analogies.

25 MR. THOMAS: I'm not sure what that

1 means, but --

2 MR. NAFICY: Okay, --

3 (Laughter.)

4 MR. NAFICY: Are these the ones that are
5 the most cost effective?

6 MR. THOMAS: Yes.

7 MR. NAFICY: So would it be fair to say,
8 then, that beyond the projects that you've
9 identified, any other projects beyond these would
10 be a lot less cost effective? Is that correct?

11 MR. THOMAS: Yes.

12 MR. NAFICY: Right, so if this goes
13 through and the money we get from this project
14 would basically fund the easiest and most cost
15 effective projects leaving behind additional work
16 to be done at a cost that would be, you know, at a
17 cost which is going to have increasingly
18 diminishing returns?

19 MR. THOMAS: Yes.

20 MR. NAFICY: Okay. And do you agree
21 that these other projects do kind of reach beyond
22 the 42 percent?

23 MR. THOMAS: Forty to 52.

24 MR. NAFICY: Forty to 52, well, let's
25 talk about that. I thought that Dr. Haltiner

1 stated today that his calculations were that this
2 amount could accomplish 42 percent. And then the
3 range was kind of added on. I mean how does that
4 work? How did the range come about?

5 DR. HALTINER: Well, we looked at a
6 range of different, if you chose the least
7 expensive per ton of reduction projects that was
8 where the \$12 million came from. That achieved,
9 you know, based on these calculations,
10 approximately 42 percent reduction.

11 If you then went to the next tier of
12 projects and included those, it came up to the
13 approximately \$25 million. And that increased it
14 up to the 52 percent.

15 So, it's basically looking at those that
16 can be done first that are most effective in
17 dollars per ton reduction.

18 MR. NAFICY: Okay, now I understand. So
19 between -- the first \$12.5 million gets you 42
20 percent, and then the next \$12.5 million gets you
21 10 percent reduction?

22 DR. HALTINER: Correct.

23 MR. NAFICY: Okay, now your office, the
24 Regional Board, is going to be under mandate to
25 achieve at least a 50 percent reduction on the

1 daily loads of sediment daily loads on this
2 watershed?

3 MR. THOMAS: Yes, under the TMDL that's
4 a goal, --

5 MR. NAFICY: Right.

6 MR. THOMAS: -- 50 percent reduction.

7 MR. NAFICY: So do you think you're
8 going to have a hard time or easy time getting
9 funding to equal the \$12.5 million to achieve only
10 10 percent sediment reduction where you have the
11 first 42 percent is already being paid for by a
12 different entity?

13 I'm sorry, that was kind of a convoluted
14 question. Let me rephrase it.

15 Do you agree that the Regional Board has
16 to secure sources of funding to meet that extra 10
17 percent of sediment reduction?

18 MR. THOMAS: The Regional Board would
19 certainly try to come up with funding to help
20 achieve that goal, yes.

21 MR. NAFICY: Is the Regional Board under
22 legal mandate to find that?

23 MR. THOMAS: I don't know.

24 MR. NAFICY: Okay. But in its efforts
25 to find funding for that extra 10 percent of

1 sediment reduction do you think the fact that the
2 projects that you or the Regional Board would be
3 trying to seek your funding for are not the most
4 cost effective, do you think that would help the
5 Regional Board's effort to raise funds or hinder
6 them?

7 MR. THOMAS: You have a premise there
8 that I'm not sure I understand. The premise seems
9 to be that if money is set aside from this project
10 to help fund sediment reduction efforts then extra
11 work would have to be done, and they would not be
12 cost effective. And we'd have trouble coming up
13 with money for those?

14 MR. NAFICY: Thanks for stringing it all
15 up for me, but that sort of was the general
16 direction I was headed.

17 It seems to me that if you are asking
18 funders to fund sediment reduction, well, do you
19 agree with the statement that if you're trying to
20 convince funders to help pay for sediment control
21 projects that they would rather pay for projects
22 that are cost effective rather than those that are
23 not very cost effective?

24 MR. THOMAS: I don't agree with your
25 premise, first off.

1 MR. NAFICY: Which premise is that?

2 MR. THOMAS: The premise that if money
3 is set aside for this project then it would fund a
4 certain type of projects, or certain project, and
5 then we would have to achieve additional
6 sedimentation reduction to get money from
7 elsewhere, and that those projects left over would
8 be inefficient and therefore we couldn't get
9 funding for it.

10 I look at it as if money for this
11 project is set aside for sedimentation reduction
12 it will be used in combination with funds from
13 other sources to achieve the greatest amount of
14 sediment reduction that we can.

15 It's not going to be divvied up and
16 we're going to say, we'll use Duke's money only
17 for these types of projects, and we're going to
18 use other people's money for these types of
19 projects.

20 I think it will be more along the lines
21 of if this money is set aside we will go through a
22 leveraging process, the Regional Board and the
23 National Estuarine Program, go through leveraging,
24 try to get as much additional funds as we can.
25 And then do all of the projects that we can do,

1 given the list of priorities.

2 MR. NAFICY: Okay. In that case, then,
3 if this \$12.5 million would go into a general fund
4 which together with other moneys to accomplish
5 sediment reduction projects, then why is it fair
6 to say that this \$12.5 million will accomplish a
7 42 percent reduction in sediment load?

8 MR. THOMAS: Why not?

9 MR. NAFICY: Because it disappears into
10 the general fund which collectively accomplishes
11 presumably 50 percent. You can't have it both
12 ways. You can't say well, this money will go into
13 specific projects that will result in 42 percent
14 reduction, but at the same time say but this money
15 just goes into the general fund which with other
16 moneys will be used to achieve overall 50 percent
17 benefit.

18 MR. THOMAS: I don't know. I don't
19 agree with that premise. I think that if moneys
20 are set aside they're going to be used as
21 efficiently as possible to achieve the goals of
22 the program. And if this approach is used, if the
23 Regional Board and the Commission agree with it,
24 then we're going to have an implementation team,
25 there will be a structure and a process for

1 implementing the program. They will prioritize
2 projects; they will pick the projects that give
3 the largest bang for the buck, and implement those
4 projects.

5 MR. NAFICY: Okay, let's just move on.

6 MR. THOMAS: Did you want to add
7 something?

8 DR. SCHWARZ: Well, I thought maybe I'd
9 just add one point here, and it has to do with
10 getting back to this whole issue of the
11 effectiveness of certain techniques.

12 If you just look at it in that term, you
13 may come to the conclusion well, if there's a
14 certain technique that is the most effective, why
15 not just put all your money into that.

16 And what I'd like to remind people is
17 that there's an extent of how much of any one
18 thing you can actually do. And we considered that
19 by number of tributaries, acreages of uplands, et
20 cetera.

21 So we kind of customized this to the
22 needs and the fit of the Chorro and Los Osos
23 watersheds. And that's part of the complexity
24 here.

25 MR. NAFICY: This is a question, I

1 guess, for the folks from PWA. One question that
2 has come up is your estimates of net loss of, you
3 know, acreage of habitat in the estuary, to what
4 extent, if at all, it took into account the
5 manmade fill that was added in the last 100 years.

6 DR. HALTINER: We have looked at that as
7 an issue, and one of our assessments was to look
8 around the Bay, where most of the human induced
9 changes, and actually I think you might include a
10 lot of the sediment that's included being
11 deposited throughout the Bay as manmade, in
12 response to altered grazing practices or land use
13 practices throughout the watershed.

14 So, from our perspective much of the
15 sedimentation in the last 200 years is manmade.
16 However, when you're talking about fill placed
17 specifically for Bay projects, and also if you
18 look at other alterations, such as dredging, the
19 majority of that activity has happened in the zone
20 one that we identified in our report.

21 And in general there's been extensive
22 changes both dredging and filling in that zone
23 one. So, as a whole, we consider the changes back
24 in the zones two, three and four to be primarily
25 ones that are most affected directly by the

1 deposition from the watershed processes.

2 And in those areas the amount of fill,
3 manmade fill, is relatively small.

4 MR. NAFICY: So you have calculated the
5 total amount of fill habitat? Do you have a
6 number?

7 DR. HALTINER: I don't have it here with
8 me, no. We have done that, and I can provide you
9 with that separately.

10 MR. NAFICY: Yeah, because there is a
11 slide that I've seen before that goes from
12 something like 1200 to about 450 or 500. So do
13 you know in relative order of magnitude where that
14 would fit, the fill amount?

15 DR. HALTINER: I don't right off the top
16 of my head, no, sorry.

17 MR. NAFICY: Michael, I'm sorry, I don't
18 want to belabor this issue of the bang for TMDL
19 implementation any more than I have to, but have
20 you seen the testimony that CAPE filed?

21 MR. THOMAS: Yes.

22 MR. NAFICY: Okay, and have you seen the
23 last exhibit to it, which is the 2002-2003 work
24 plan for the Southern California Wetlands Recovery
25 Project?

1 MR. THOMAS: I read your text. I did
2 not read the appendix.

3 MR. NAFICY: Are you familiar with the
4 Southern California Wetlands Recovery Project?

5 MR. THOMAS: Just generally.

6 MR. NAFICY: Okay, and do you know what
7 their operating budget is roughly?

8 MR. THOMAS: I saw what you had in your
9 text there. I don't remember it off the top of my
10 head. I think you have a number like total
11 proposed or hoped for numbers, like \$200-and-
12 something million?

13 MR. NAFICY: Yeah, they say the total
14 estimated cost with confidential acquisition costs
15 included is \$275 million.

16 And their own contribution to the
17 various projects they estimate at 82 million.

18 MR. THOMAS: Who's their own?

19 MR. NAFICY: The South Coast, the
20 Southern California Wetlands Recovery Project.

21 MR. THOMAS: So the rest of that would
22 have to come from local matches?

23 MR. NAFICY: Well, they have -- well, if
24 you seen my chart it says other state, federal,
25 local and private, okay.

1 Now, do you know what their secret is
2 for being able to leverage so much money to do the
3 type of projects we're talking about here? And
4 why Central Coast couldn't get some of that kind
5 of money?

6 MR. THOMAS: I don't know, no.

7 MR. NAFICY: Okay. Finally, do you know
8 about the -- does someone else on your panel know?

9 MR. THOMAS: No.

10 MR. NAFICY: Do you know about the Army
11 Corps' feasibility study for doing some
12 restoration work in the Morro Bay?

13 MR. THOMAS: Yes, I'm familiar with
14 that.

15 MR. NAFICY: Okay. Now, do you know
16 what type of projects they're looking at?

17 MR. THOMAS: My understanding is that
18 the main thing they're looking at is dredging.

19 MR. NAFICY: Okay, so they're not
20 looking at any upper watershed restoration
21 projects?

22 MR. THOMAS: They may be, I'm not
23 familiar with upper --

24 MR. NAFICY: Okay, so you're not in
25 close contact with them?

1 MR. THOMAS: No close contact, no.

2 MR. NAFICY: Is it possible that some of
3 the projects that they may end up identifying and
4 requesting funding for would at least overlap with
5 some of the projects that are being proposed here?
6 But that hasn't been explored, has it?

7 MR. THOMAS: No, I have not explored it.

8 MR. NAFICY: Okay. I have nothing
9 further.

10 HEARING OFFICER FAY: Okay, thank you,
11 Mr. Naficy. And I believe the Committee has some
12 questions.

13 PRESIDING MEMBER KEESE: Let me --lead
14 into this. The Committee is looking at this in
15 two ways, as we've explained this morning. And
16 that is the first decision we'll have to make with
17 regard to what I'll call the new power plant
18 versus the old power plant, does it entrain more,
19 does the new power plant entrain more than the
20 old. That's for us.

21 You're not making that judgment; you're
22 looking at what the new power plant will entrain
23 over the life cycle?

24 MR. THOMAS: Yes.

25 PRESIDING MEMBER KEESE: And using that

1 analysis you get to acre years --

2 MR. THOMAS: Yes.

3 PRESIDING MEMBER KEESE: -- of, let's
4 say, goby production? Then you take that generic
5 number and transfer it over and say, but -- you
6 quantify that and then you move it over and say,
7 but there's a better -- we could get something
8 more productive out of it? Is that --

9 MR. THOMAS: Yes, in the same units.
10 Using acre years of -- I wouldn't say just gobies,
11 because there are many many species --

12 PRESIDING MEMBER KEESE: Well, I'm going
13 to just try and stick to gobies for a second, but
14 for --

15 MR. THOMAS: Okay.

16 PRESIDING MEMBER KEESE: -- over a 40-
17 year life, is that what we're talking about?

18 MR. THOMAS: Fifty years.

19 PRESIDING MEMBER KEESE: Fifty-year
20 life. We were talking about density of the
21 larvae. I guess I'd ask Professor Cailliet.

22 Is the density currently -- would it be
23 your opinion that the density of goby larvae, the
24 highest impacted species here, in the Bay is less
25 than it was before the power plant was there?

1 DR. CAILLIET: I couldn't give you any
2 estimate of density of goby larvae from any other
3 study than the only one that was done that was
4 done by Duke and Tenera recently. Density of
5 larvae.

6 Density of goby adults has never been
7 satisfactorily done, to my knowledge, in Morro
8 Bay. The only two published studies were by Harry
9 Firestine, a retired professor at CalPoly, and
10 Michael Horn from CalState Fullerton in the '70s
11 and '80s respectively, I might have the dates
12 reversed on those two. And they did -- seines,
13 which is a haul net and the trawl surveys. They
14 caught gobies, but none of the species that we're
15 talking about are adequately sampled with those
16 techniques.

17 PRESIDING MEMBER KEESE: Then was the --

18 DR. CAILLIET: Now there may be some
19 people more recently, the same people from UC
20 Santa Barbara, that have either come up here to
21 start surveying or talked about it, but there are
22 no published --

23 PRESIDING MEMBER KEESE: Well, I --

24 DR. CAILLIET: -- that I know of of
25 densities of goby adults.

1 PRESIDING MEMBER KEESE: -- I'm more
2 concerned with trying to talk about at least look
3 at density, or you tell me that it doesn't matter.

4 I'm concerned with a couple timeframes.
5 Let's say what the density of gobies might have
6 been before the power plant. What the density of
7 goby -- I'm going to assume that the density of
8 gobies has sort of rationalized itself, and we're
9 not going up or down with the operation of the
10 power plant.

11 Perhaps in major years it obviously
12 entrains more than it does in others. Does that
13 have a significant effect on the density?

14 And then the third step will be when
15 we've done an enhancement program like we're
16 talking about, if that's what we wind up with, are
17 we going to increase the density of gobies in the
18 Bay? Is it your opinion? Or are we going to --

19 DR. CAILLIET: The answer to the first
20 question --

21 PRESIDING MEMBER KEESE: Okay.

22 DR. CAILLIET: -- is that we absolutely
23 have no empirical data that tells us what the
24 density of the adult gobies was before the power
25 plant. Nor do we have ichthyoplankton data on the

1 larval fish. So we don't know how many gobies
2 there were.

3 In Elkhorn Slough we do. We have three
4 decades of data, two decades of adult fish
5 samples, none of which covered adult gobies,
6 because they're in those burrows. But the larvae
7 we do have good evidence for.

8 So, I guess my answer to your second
9 question, if you started doing baseline surveys
10 now and tried to map with that new technique what
11 goby densities are now, and figured out what the
12 average densities are for the existing habitat,
13 and then back-calculated how much of that habitat
14 has been lost, you can figure out from what
15 perspective perhaps what the change in goby
16 populations might have been.

17 I don't think you could attribute that
18 to the power plant.

19 PRESIDING MEMBER KEESE: Okay. If the
20 power plant eliminates many of the goby larvae,
21 does that -- is it your opinion that that reduces
22 the amount of adult gobies in the habitat?

23 DR. CAILLIET: I really don't have an
24 opinion based on facts, because there are no facts
25 that show that trend.

1 Based on a couple of other lines of
2 evidence that haven't been brought up today, but
3 that are in the 316(b) report, the main one being
4 that the samples of ichthyoplankton, larval fishes
5 that were taken in stations 3 and 4, which are
6 farther into the Morro Bay estuary, closer to
7 where the habitats are that the adult gobies live,
8 those had much higher size classes representative
9 of the gobies, indicating that the ones that are
10 being entrained by the power plant are probably
11 very young, one, two, three, four, five days old
12 at the maximum. So that these larvae, these
13 gobies have the ability to guard their young in
14 these burrows. And the larvae that come out have
15 some mechanism that we do not understand that
16 retains them after a certain size, so that they
17 don't become susceptible to the plant.

18 So a lot of the gobies up in the
19 estuary, in my opinion, and it's not based on fact
20 except for that size frequency stuff, the gobies
21 up in the Bay, they reach a certain size, they're
22 probably protected from entrainment because they
23 will not get washed out by the tides, and
24 therefore will not be susceptible to entrainment.

25 PRESIDING MEMBER KEESE: Do you have any

1 opinion regarding the density of gobies in other
2 areas of coastal -- other estuarine --

3 DR. CAILLIET: Only the estimates I have
4 for densities I gave you on those two slides. And
5 I had one slide I didn't use because I didn't want
6 to push it any harder, but in Carpenteria Marsh
7 there also is estimates from those cylinders that
8 have been taken.

9 To my knowledge those are the only
10 available adequate or accurate densities of
11 gobies, adult gobies in mud flat habitats.

12 PRESIDING MEMBER KEESE: Okay.

13 DR. CAILLIET: There are ichthyoplankton
14 estimates of gobies, and their larvae, not always
15 identified the species, from Elkhorn Slough since
16 the '70s, '80s and '90s. And in several other
17 bays, San Francisco Bay, and I believe there's one
18 study down south, as well.

19 And let me add one more answer to I
20 think a previous question. If, indeed, you went
21 into a habitat enhancement program and wanted to
22 see if the larvae had changed, I believe there
23 might be two ways of assessing that.

24 One would be to redo the study that was
25 just done by Tenera and Duke of the

1 ichthyoplankton, both at the entrainment and in
2 those stations in the Bay; and see if, indeed, the
3 larval densities per cubic meter filtered by that
4 zooplankton that had changed. We've done that in
5 Elkhorn Slough and there have been changes. The
6 changes have been positive, not negative.

7 So there it's my sincere opinion that
8 those densities have increased in gobies at
9 Elkhorn Slough, having nothing to do with the
10 power plant, but having to do with changes in
11 their erosion and sedimentation processes.

12 PRESIDING MEMBER KEESE: Okay, so
13 currently, then, I guess, we don't have a maximum
14 capacity of gobies per cubic meter?

15 DR. CAILLIET: No, the only empirical
16 number I have that would represent a maximum to me
17 would be that one figure I showed that had around
18 80 per .43 square meters, which would be about --

19 PRESIDING MEMBER KEESE: -- adults --
20 you're talking about adults?

21 DR. CAILLIET: I'm talking, they're only
22 three inches long, but they're adults, yes.

23 PRESIDING MEMBER KEESE: All right. And
24 that would probably be the maximum density for
25 adults digging into the ground? I mean that might

1 be --

2 DR. CAILLIET: It is so high that it
3 surprised me. So, it's very high. I would say a
4 maximum might be 200 adult gobies per square
5 meter.

6 PRESIDING MEMBER KEESE: Okay.

7 DR. CAILLIET: A meter by a meter.

8 PRESIDING MEMBER KEESE: And there would
9 seem to be a maximum goby larvae per cubic meter
10 of the Bay?

11 DR. CAILLIET: That's a very good
12 question. We have absolutely no idea what the
13 number of larvae is per adult goby of any of these
14 species in any kind of empirical way.

15 (Parties speaking simultaneously.)

16 DR. CAILLIET: -- nobody's been able to
17 sample them; nobody's taken the gobies out and
18 looked at their gonads and seen how many eggs they
19 have. Nobody's tried emergent tracks to see what
20 larvae are produced from a burrow.

21 Those would be some very exciting
22 projects and it's not been done.

23 PRESIDING MEMBER KEESE: Okay, --

24 DR. CAILLIET: We really don't know the
25 fecundity of most of these adult gobies, that's

1 the number --

2 PRESIDING MEMBER KEESE: And so we don't
3 know how many are dying off of a natural --

4 DR. CAILLIET: We don't know what --

5 PRESIDING MEMBER KEESE: I'm trying to
6 equate my personal experience where I, you know,
7 you could --

8 DR. CAILLIET: Right.

9 PRESIDING MEMBER KEESE: -- as I said to
10 somebody, if we have 15 deer on 1000 acres, --

11 DR. CAILLIET: Right.

12 PRESIDING MEMBER KEESE: -- once you get
13 to 30 deer, they're going to die off. And once
14 you get to five, they're going to -- you're going
15 to get stabilization of some sort if you preserve
16 the environment.

17 DR. CAILLIET: Right, and what I --

18 PRESIDING MEMBER KEESE: And I'm trying
19 to think what is our stabilization here. Are we
20 looking to increase the number of gobies per goby
21 larvae? Are we trying to make sure that there's
22 enough gobies in the ground?

23 DR. CAILLIET: That's what my proposal
24 would be, yes. And we don't have any idea what
25 the total goby population is. And I'm really glad

1 you didn't ask me to convert the number of gobies
2 per square meter to acre, because I couldn't do
3 it. Meet me after the break.

4 (Laughter.)

5 DR. CAILLIET: What I'm saying is if you
6 returned back to the habitat they used to have
7 here, you will undoubtedly, in my opinion, enhance
8 the goby total population in Morro Bay.

9 PRESIDING MEMBER KEESE: Thank you.

10 COMMISSIONER BOYD: Let me make a
11 comment here on why I'm not asking a lot of
12 questions. Because I spent some of my career in
13 Fish and Game, and the last three years dealing
14 with watershed enhancement and what-have-you, as a
15 Deputy Secretary of the Resources Agency. So I
16 kind of understand where you're coming from.

17 And I also recognize this technique of
18 leveraging the dollars, which is kind of a new
19 found thing in the last decade or so.

20 So I have a pretty good idea of what
21 you're proposing here. And I appreciate the fact
22 it takes some seed money to propagate the funds
23 into larger funds, so, we shall see.

24 PRESIDING MEMBER KEESE: Before -- I
25 guess we haven't lost you completely yet, but, Mr.

1 Thomas, before we --

2 (Audio difficulties.)

3 PRESIDING MEMBER KEESE: Mr. Thomas, you
4 have a goal of 50 percent irrespective of whether
5 this project comes in. So, what you're
6 essentially saying is it's not as if you expect
7 Duke to get you to the 50 percent. You've got to
8 what you hope Duke would contribute through this
9 other methodology at the lower end of 12.5
10 million, there's some equation there which you
11 believe would get you to the 42 percent.

12 At the higher end, leaving that you
13 haven't made a firm decision on whether it is
14 12.5, you could get to 52 if you get up towards
15 the \$25 million, is that --

16 MR. THOMAS: Um-hum.

17 PRESIDING MEMBER KEESE: -- is that
18 correct?

19 MR. THOMAS: Yes. Yes.

20 PRESIDING MEMBER KEESE: And the Board,
21 so if your Board accepts your numbers does your
22 Board get the 12.5 million? Or does your Board
23 still have flexibility to go 12.5 to 25?

24 MR. THOMAS: They have flexibility. The
25 Board sets the amount. I anticipate that when we

1 put out a final draft permit in early January that
2 that again will reflect the Presiding Member's
3 decision that that will have a final number in it.
4 And we'll sit down with Duke Energy and hopefully
5 Energy Commission Staff, if they're interested,
6 and our independent scientists, and then we will
7 come up with a final number that is something that
8 we can all agree to. And that will be included in
9 the draft permit.

10 PRESIDING MEMBER KEESE: Thank you.

11 HEARING OFFICER FAY: Just following up
12 with Dr. Cailliet, is it fair to assume that your
13 discussion with Commissioner Keese about gobies is
14 roughly a proxy for the species affected by the
15 power plant? Or is that very specific just to
16 gobies, and other species would have to be
17 addressed separately?

18 DR. CAILLIET: It's more specific to a
19 suite of three to perhaps five species of gobies
20 that occupy that area just below the salicornia
21 marsh down into the tidal creeks.

22 Several of the other species of fishes
23 that were entrained significantly undoubtedly have
24 different habitats. One would be the blenny. And
25 we did actually ask, the technical working group

1 did ask Duke and Tenera to try to survey that.
2 They did it in at least a qualitative way and
3 found that, indeed, those were occupying habitats
4 more sub-tidal, some of which are moorings and
5 things like that, very close to the intake, which
6 accounted for the high number of larvae available
7 to the plant, and therefore entrained by the
8 plant.

9 Other species like top smelt, herring
10 come in periodically a month and lay eggs on
11 eelgrass. And when those eggs turn into larvae as
12 they hatch, if they're laid near the entrance to
13 the power plant, which does happen sometimes, they
14 also will be temporarily susceptible to that power
15 plant entrainment.

16 So, the different types of species have
17 different capabilities of being entrained. The
18 habitats that we're talking about protecting or
19 enhancing or restoring, whatever the words would
20 be, primarily would be those that live on mud
21 flats and relatively shallow tidal creeks
22 primarily dominated by gobies.

23 HEARING OFFICER FAY: Is it fair to say
24 that even though some of the species that are
25 found in greater quantities close to the power

1 plants, especially on manmade structures, probably
2 wouldn't be helped by habitat enhancement plan,
3 that a habitat enhancement plan that aided the
4 upper reaches of the estuary would also aid
5 species not at all affected by the power plant?

6 DR. CAILLIET: That's true; that latter
7 part is true. The former part of the question, it
8 depends on the species again. But there are some,
9 like the staghorn sculpin, that lives more in the
10 tidal flats and up into the pickle weed at high
11 tide.

12 And you could, if you restored certain
13 tidal creeks or channels, even, enhance some of
14 the species that are -- provide habitat that might
15 enhance the population levels of a few of the
16 species that don't live in the mud flats, burrows
17 and places like that, including the herring and
18 the top smelt and so on.

19 HEARING OFFICER FAY: Okay. And in
20 terms of your monitoring suggestions, obviously
21 there's a lot going on in Morro Bay besides the
22 Morro Bay Power Plant. And I gather the National
23 Estuarine Plan doesn't even list the power plant
24 in the first seven stressors.

25 Would you recommend that the Water Board

1 account for these other stressors, or is that just
2 not worth worrying about? In other words, if
3 you're monitoring for success of the plan, is that
4 in light of the power plant's contribution to the
5 plan, or is it in a more generic sense on which
6 projects to pursue next and that type of thing?

7 Are we trying to match impacts with
8 mitigation or are we just monitoring for the
9 success of the specific portion of the plan?

10 MR. THOMAS: I think we're doing both.
11 We're looking at the overall health of the
12 estuary, tracking the health of the estuary over
13 time relative to a control. And probably more in
14 a qualitative sense, would use the data to
15 determine if the power plant is having an effect
16 on these populations.

17 I don't know that it could be done. Do
18 you want me to answer that? I don't know that it
19 can be done in a quantitative sense; it might be
20 more qualitative. But it would be both, looking
21 at the long-term health of the Bay and
22 interpreting that data, trying to interpret that
23 data with respect to increased productivity or
24 preservation of habitat over time and power plant
25 impacts.

1 DR. CAILLIET: I think pretty much I
2 would echo what Michael said. My primary
3 interest, having seen the information on the
4 sedimentation rate and the man-induced filling in
5 of Morro Bay has had -- it seems to me that's the
6 biggest problem with the system and how it's going
7 to fill in rapidly.

8 And to try to maintain the quality of
9 that ecosystem, I'm looking at it from that
10 perspective, not as much from the power plant, if
11 it was decided that you wanted to document further
12 what impacts the new power plant might be having
13 relative to the old power plant, then what I would
14 suggest would be similar studies that were done
15 for the 316(b) being done at a period of time
16 subsequent to the new power plant going in perhaps
17 five years, ten years from now.

18 And you could certainly evaluate how
19 many larvae are being taken in and evaluate how
20 many larvae there were in the other habitats as a
21 result of enhancement of these habitats which is
22 kind of the question that I answered for you, Mr.
23 Keese, when I said you could do ichthyoplankton
24 surveys and see how much change there is between
25 1999-2000 and let's say 2005-2010. So you could

1 do that.

2 But my motivation here is that I see a
3 clear way to enhance an estuary that seems to be
4 filling in rapidly. And one way would be to have
5 Duke chip in to help with that. And, as part of
6 the process, I think it could also enhance some of
7 the populations that are being heavily influenced,
8 the larval mortality which are being heavily
9 influenced.

10 PRESIDING MEMBER KEESE: And if the
11 estuary fills in the Duke plant won't be taking
12 many larvae, either.

13 DR. CAILLIET: Yes, that's right.

14 PRESIDING MEMBER KEESE: Let me ask Mr.
15 Thomas a question. You alluded to the fact that
16 at Moss Landing that you got a three-for-one, that
17 there was 7 million in the fund and another 14
18 million came in?

19 MR. THOMAS: Yes.

20 PRESIDING MEMBER KEESE: And I heard
21 from CAPE that evidently in southern California
22 there's a larger match than that.

23 MR. THOMAS: I don't know what is --

24 PRESIDING MEMBER KEESE: Okay, well, I
25 don't think we need -- I don't think it's our role

1 here to assume a match at all of any kind.

2 But are you suggesting that when you
3 decide what the dollar impact should be that some
4 of it will be in mitigation measures and some of
5 it will be in the monitoring program? Or are you
6 assuming that you're going to just get a
7 mitigation program and then ask for a monitoring
8 program, too?

9 MR. THOMAS: Yes. I anticipate that we
10 will set a dollar amount for projects, and then
11 additional funds will be necessary to do
12 monitoring to support administration of the
13 program. Those two things. And the third thing
14 would be support an independent scientific panel.

15 So those funds would be in addition to a
16 fund for the project.

17 PRESIDING MEMBER KEESE: So when you --
18 all right, I do understand you're going to have
19 three pods here. But when you make your first
20 determination as acre years, and you quantify
21 that, is that -- when your Board quantifies what
22 that number is, is that the contribution you're
23 going to be expecting to get from Duke?

24 MR. THOMAS: Yes.

25 PRESIDING MEMBER KEESE: Thank you.

1 COMMISSIONER BOYD: This is reflected on
2 page 26 of your draft order, if I'm reading it
3 correct here. You're setting your range of
4 program funding and saying, in addition, and
5 laying out three programmatic areas where you are
6 suggesting to your Board they request additional
7 funds over a five-year period of time?

8 MR. THOMAS: Yes. And the reason we
9 picked five years is because the permit is renewed
10 every five years. So we could look at the amount
11 of funding that's being provided on an annual
12 basis to determine if it's adequate or if it's too
13 much.

14 HEARING OFFICER FAY: Mr. Thomas, on
15 page 24 of the draft they talk about the habitat
16 enhancement program and the various ways to
17 implement it, the executive team.

18 Have you considered any role for the CEC
19 in that? Or has that even come up?

20 MR. THOMAS: Yes, internally we
21 discussed that and we felt that after the
22 Presiding Member's decision if the Presiding
23 Members wanted to go this route and felt that the
24 Energy Commission should be involved in that, then
25 the Energy Commission would be included in each

1 level that's represented here.

2 HEARING OFFICER FAY: Okay. And on page
3 27 of the draft I was a little confused because
4 you cite that under section 306 of the Clean Water
5 Act that the power plant is considered a new
6 source. And yet under 316(b) I understand it's
7 considered an existing source.

8 Could you clarify that for me?

9 MR. THOMAS: Well, that was -- you're
10 talking about finding number 35?

11 HEARING OFFICER FAY: Yes.

12 MR. THOMAS: That was written by our
13 attorney, so I do not understand why it is
14 classified as a new or existing source under these
15 various regulations.

16 But my understanding from talking about
17 this issue with our attorney is that it is
18 considered a new source under section 306, it is
19 considered a new source. Therefore, we are
20 relying on the Energy Commission's CEQA equivalent
21 process.

22 Normally, like say Duke Energy was not
23 going to modernize this plant, they were going to
24 continue operating the existing plant. We would
25 issue a revised permit, an updated permit for the

1 existing plant. And it wouldn't come under this
2 section.

3 We would not rely on -- the Energy
4 Commission wouldn't even be involved, for one
5 thing. But we wouldn't have to do a CEQA level
6 analysis of the project.

7 PRESIDING MEMBER KEESE: That's in your
8 five-year process? I mean every five years that's
9 what --

10 MR. THOMAS: Yes.

11 PRESIDING MEMBER KEESE: -- you would
12 do?

13 MR. THOMAS: Yes.

14 HEARING OFFICER FAY: Okay. Following
15 up on that then, can you summarize for us the
16 areas that you will be relying on the Presiding
17 Member's Proposed Decision. At least for your
18 staff draft.

19 MR. THOMAS: My understanding is that we
20 will be relying mainly on the issues -- mainly
21 rely on resolving this impasse between Energy
22 Commission Staff, Duke Energy and the City of
23 Morro Bay regarding the site specific availability
24 of closed cooling systems.

25 If these closed cooling systems are

1 available pursuant to the Presiding Member's
2 decision, then we will include that in our draft
3 permit. And we will say that they are available
4 because those issues have been resolved.

5 We will still, however, have the
6 opinion, from my view we will still have the
7 opinion that costs are wholly disproportionate to
8 the benefit to be gained.

9 HEARING OFFICER FAY: So, it's primarily
10 regarding cooling alternatives in terms of
11 feasibility and environmental impacts of those
12 alternatives, is that correct?

13 MR. THOMAS: Yes.

14 HEARING OFFICER FAY: Okay. All right.
15 And I also wanted to ask Mr. Naficy was asking
16 about the risks of picking off the lowest fruit,
17 if you will, the projects with the highest cost/
18 benefit ratio.

19 And I gathered from his questioning that
20 he thought that perhaps at the end of the day that
21 left an unappealing list of projects and would
22 perhaps discourage more work on improving the
23 estuary.

24 But am I correct that that analysis was
25 to help you reach a cost estimate to present to

1 your Board and to the Energy Commission, rather
2 than to actually recommend the setting of a
3 priority list of projects?

4 MR. THOMAS: That's correct. If the
5 Energy Commission and the Board want to pursue
6 this option there would be a structure and a
7 process set up which includes an implementation
8 team. And that implementation team would use this
9 reference and other references like the National
10 Estuary Program's comprehensive management plan
11 and work that has been done since that document
12 was published to come up with a list of projects.

13 And then that implementation team would
14 propose those projects up the ladder. And if the
15 Energy Commission is interested in this process,
16 they would be included in that structure. And the
17 Regional Board and the Energy Commission then
18 approve or deny those projects.

19 HEARING OFFICER FAY: And the priority
20 list that you looked at today I imagine could be
21 different than the lists that one might see in the
22 future if there was funding from Duke, and if it
23 resulted in favorably leveraging such as occurred
24 at Elkhorn Slough.

25 MR. THOMAS: Yes.

1 HEARING OFFICER FAY: Thus enlarging the
2 pot of money. That would change, considerably
3 change the list of projects, right?

4 MR. THOMAS: Yes, it could. Mr. Naficy
5 asked if we were considering, for instance, the
6 Army Corps of Engineers work. And would that work
7 overlap with what we are proposing here.

8 And I hope that it would because I hope
9 that the Army Corps of Engineers is flexible and
10 were considered multiple projects beyond dredging
11 to enhance the estuary. And that they would
12 consider any funds that were obtained under this
13 habitat enhancement program as a local match.

14 Because I know that in that process that
15 the Army Corps of Engineers goes through, they do
16 require a local match. And they go to Congress
17 and ask for funds. Congress needs to know if
18 there is an interest in this area, and if there
19 are funds available, matching funds available.
20 They are not just going to hand over \$10- or \$20-
21 or \$30-million or whatever. They want to make
22 sure there are matching funds.

23 So I hope that they do overlap. And if
24 we go in this direction that these funds could be
25 used for a local match.

1 HEARING OFFICER FAY: So you would
2 anticipate coordinating with the efforts of the
3 Army Corps and other agencies, I assume, as well?

4 MR. THOMAS: Definitely. The National
5 Estuary Program is listed as the implementation
6 team, along with Regional Board Staff. And they
7 are currently working with the County and the Army
8 Corps of Engineers to implement that project.

9 DR. HALTINER: I also just wanted to add
10 one comment on the potential attractiveness of
11 some of these other projects that are listed but
12 weren't necessarily included in that optimization
13 process.

14 A lot of those projects have multiple
15 benefits up in the watershed, themselves, that are
16 well beyond just the reduction of impacts to the
17 Bay. And those are habitat enhancement, nutrient
18 control and things like that, that were not
19 considered as a direct benefit in this analysis.
20 But may be very attractive onsite alternatives.

21 So, it's not just focused on the Bay.

22 HEARING OFFICER FAY: Okay, thank you.

23 COMMISSIONER BOYD: One question.

24 Perhaps, Mr. Thomas and others, is it your
25 experience that in these projects, and I recognize

1 this as becoming a new area of interest in the
2 entire system and trying to remedy these systems.

3 Is it your experience, for instance you
4 cited the Corps. They have an interest, of
5 course, under the law and they have an expertise
6 and a skill, particularly an expertise in dredging
7 which may be farther down on, you know, maybe
8 higher hanging fruit, to steal a phrase here.
9 Nonetheless, it's something they'd be more
10 interested in.

11 And other possible participants
12 generally have, as was just commented, an interest
13 in another specific piece of the system that
14 regardless of cost they would be interested in?
15 Or foundations, for example, are generally
16 interested in contributing to just the health of
17 an entire system and getting a system back to
18 where you think it could be.

19 And so when you aggregate this all
20 together, there are all kinds of opportunities to
21 expand the types of work. Some of them don't care
22 about where the fruit hangs on the tree, or how
23 far out on the cost effectiveness curve you are,
24 but it's kind of a synergism, and it's just
25 pooling of the money together to get the system

1 restored.

2 MR. THOMAS: Yeah, I would agree with
3 that. I think that the El -- Foundation has
4 experienced exactly that. And going out and
5 leveraging these funds.

6 They have groups that they work with;
7 they're not all necessarily interested in the
8 exact same thing, but they do overlap. Their
9 interests overlap. And by contributing to the
10 overall project, each group sees their own
11 objectives or goals partially met.

12 So, if that's along the lines of what
13 you're saying, I would agree.

14 HEARING OFFICER FAY: Mr. Thomas, did
15 you have anything else to add, then, before we
16 conclude with your presentation and take a lunch
17 break?

18 MR. THOMAS: No. Well, one thing is
19 that I want to emphasize that the people that we
20 have as independent scientists representing the
21 Board here, Dr. Cailliet, Dr. Raimondi is not here
22 but has expressed his opinion to the Commission
23 and the Board, Phil Williams and Associates, that
24 they're expressing their own opinions.

25 And I think if I were a decision maker I

1 would think about that. I would think, you know,
2 on Duke Energy's side of the table you're not
3 necessarily going to find people over there that
4 disagree with Duke Energy. They might not be
5 there if they disagree with Duke Energy's
6 position.

7 On this side I can say, and you can ask
8 these folks, that they present their own opinions.
9 If they were here -- if their opinion was that
10 closed cooling had to be implemented here they'd
11 be saying it. And they would still be our
12 consultants.

13 And we won't present recommendations to
14 the Board or to the Commission that our
15 independent scientists don't support. So, we go
16 through this process and we make sure that they
17 are presenting their own opinions and not trying
18 to just present, you know, our support staff in
19 the process.

20 And the last thing I'd like to say is
21 that if you're thinking about making this
22 decision, I would project myself into the future a
23 couple hundred years and look back, and say, what
24 would be the best decision from that point of
25 view.

1 If you consider yourself 300 years from
2 now, looking back in time, what would have been
3 the best decision to make. If we go with cooling
4 towers and we don't get this funding that's
5 necessary to control sedimentation, then at that
6 point in time we'd be standing in a field and the
7 power plant would be gone, it would be history, no
8 one would even remember it and we would have no
9 estuary.

10 But if we, when opportunities like this
11 arrive where moneys becomes available, if we use
12 them for good resource management decisions, then,
13 you know, looking back in time at that point the
14 power plant will be gone, it will be history and
15 all the issues associated with it, we will still
16 have an estuary.

17 So I would look at it from that point of
18 view. I've done that and argued that with our
19 consultants, and I think it's helped for us to
20 clarify -- the choices.

21 HEARING OFFICER FAY: Great. Well,
22 thanks very much for coming and presenting your
23 draft and the background for it.

24 Before we do break for lunch I think
25 since you've relied on these documents and they're

1 before us, it might be a good time, if there's no
2 objection, to enter into evidence the discussed
3 memo that was identified as exhibit 314.

4 By the way, I wonder if you would mind
5 sending that out on the proof of service list
6 again --

7 MR. THOMAS: Sure, I will.

8 HEARING OFFICER FAY: -- since there
9 seems to be some --

10 MR. THOMAS: Yeah, I apologize for that.
11 I'm not sure what happened.

12 HEARING OFFICER FAY: That's right.

13 MR. THOMAS: Some people --

14 HEARING OFFICER FAY: That's all right.
15 So that's exhibit 314. And also the Philip
16 Williams and Associates report, exhibit 288. Duke
17 had listed it as an exhibit, but we've already
18 heard from the authors. Is there objection to
19 receiving that at this time?

20 MR. THOMAS: Do I have to send that to
21 you, as well?

22 HEARING OFFICER FAY: No, no, that has
23 been made available to everybody.

24 MR. THOMAS: And the memo is exhibit
25 314?

1 HEARING OFFICER FAY: Yes. Ms. Holmes?

2 MS. HOLMES: I have something when
3 you're done with the exhibits.

4 HEARING OFFICER FAY: I'm sorry, what?

5 MS. HOLMES: There's something I need to
6 bring up when you are done with the exhibits.

7 HEARING OFFICER FAY: Okay. All right.

8 MR. ELLISON: Mr. Fay, did you also want
9 to admit exhibit 312, which is the administrative
10 draft permit?

11 HEARING OFFICER FAY: I believe we
12 already received that. If not, then, yes, we do
13 want to admit that at this time. And also exhibit
14 313, which is the PowerPoint presentation, which
15 my understanding is relies entirely on the
16 documents that have been admitted. It's just a
17 different depiction of that information.

18 All right, Ms. Holmes.

19 MS. HOLMES: In light of Mr. Thomas'
20 discussion about the people that are working with
21 the Regional Board, I feel that I ought to make a
22 statement on the record that both Dr. Cailliet and
23 Dr. Schwarz are also under contract to the Energy
24 Commission for different projects.

25 HEARING OFFICER FAY: Can you

1 characterize the scope of --

2 MS. HOLMES: I can't, but Mr. Anderson
3 can.

4 HEARING OFFICER FAY: Well, let's just
5 take a very brief --

6 MS. HOLMES: I do think it's important
7 to have on the record.

8 HEARING OFFICER FAY: Okay, let's very
9 briefly characterize this, because -- kind of left
10 wide open.

11 MR. ANDERSON: They're both helping out
12 on a couple regulatory projects because of their
13 expertise. I don't see it as being a conflict in
14 this case. And I don't remember the exact cases,
15 but maybe El Segundo or Huntington Beach for Greg;
16 and Ken's worked on a couple of -- Ken Schwarz has
17 worked on a couple of projects, and I can't
18 recall. Currently he's working on at least one.
19 Blythe is one, Rose -- which we don't know where
20 it'll go, so --

21 HEARING OFFICER FAY: Okay. So we can
22 assume that the marine biology impacts of the
23 Blythe project are not --

24 (Laughter.)

25 MR. ANDERSON: A million years ago that

1 was an estuary.

2 HEARING OFFICER FAY: Okay, thank you
3 for that clarification. Anything further?

4 All right, Duke has provided a light
5 lunch outside, and we'll take a 30-minute break to
6 have lunch.

7 (Whereupon, at 12:08 p.m. the hearing
8 was adjourned to reconvene at 12:38
9 p.m., this same day.)

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1 AFTERNOON SESSION

2 12:45 p.m.

3 HEARING OFFICER FAY: All right, we're
4 back on the record now. I understand that the
5 Public Adviser is not here, but Marc Pryor, who
6 introduced himself earlier, is standing in the
7 back. He's holding up the blue card. He is
8 available to help you if you have any questions
9 about participating. And we sure would like
10 everybody to contact him and put their name on a
11 blue card.

12 We use the cards, put them in the order
13 in which we receive them. And then we're sure to
14 call on people during the public comment period so
15 that they will not be overlooked. Because we
16 certainly want to hear from anybody who wishes to
17 comment. And we'll be taking comments at 5:00
18 p.m.

19 The next item for business on our agenda
20 is to actually hear Duke's presentation of its
21 habitat enhancement plan, and the various parties'
22 reaction to that.

23 So I'll now ask Mr Ellison if he's ready
24 to begin.

25 MR. ELLISON: Thank you, Mr. Fay. Yes,

1 we are. Sitting to my left is the Duke panel, and
2 they will introduce themselves individually in a
3 moment, but first I'd like to have them sworn.

4 HEARING OFFICER FAY: Please stand.
5 Please swear the witnesses.

6 Whereupon,

7 MARGARET ROSEGAY, KEVIN JOHNSON, DAVID MAYER,
8 STEPHEN FRIANT, THOMAS CAMPBELL and LINDA KUHN
9 were called as witnesses herein, and after first
10 having been duly sworn, were examined and
11 testified as follows:

12 DIRECT EXAMINATION

13 BY MR. ELLISON:

14 Q Okay, beginning with Ms. Rosegay
15 immediately to my left, and then proceeding to my
16 left I'd ask each of the witnesses to state and
17 spell your name for the record; and give a short
18 summary of your qualifications and experience as
19 related to habitat enhancement.

20 MS. ROSEGAY: Good afternoon; my name is
21 Margaret Rosegay; that's spelled M-a-r-g-a-r-e-t
22 R-o-s-e-g-a-y. I'm a partner with the lawfirm of
23 Pillsbury Winthrop in San Francisco with over 23
24 years of experience in environmental law.

25 I've been working with Duke on the Morro

1 Bay modernization project for the past year on
2 issues relating to the NPDES permit, in particular
3 the BTA requirements of the Clean Water Act, and
4 how those requirements may be addressed through
5 implementation of the habitat enhancement program.

6 MR. JOHNSON: My name is Kevin Johnson;
7 I'm Director of Asset Development for Duke Energy
8 North America, responsible for their new business
9 activities in the western U.S. and Canada.

10 I have over 20 years experience in the
11 development of infrastructure and energy projects;
12 a bachelors degree in economics and a masters in
13 business administration.

14 DR. MAYER: David Mayer, President of
15 Tenera Environmental; and the firm, as well as
16 myself, was responsible for the design, direction
17 and analysis of the Morro Bay studies relevant to
18 this case on the intake and discharge of the power
19 plant, the modernized project that's proposed.

20 My background is in marine biology and
21 fishery science; and I have a PhD in that.

22 DR. FRIANT: Steve Friant with Entrix.
23 I've been with Entrix for about the last seven
24 years and involved with both 316(b) related issued
25 and habitat equivalency analysis. I have a PhD in

1 environmental sciences.

2 MR. CAMPBELL: My name is Tom Campbell;
3 I'm a partner with the firm of Campbell, George
4 and Strong. I have been working in the habitat
5 equivalency and restoration area for the past 13
6 years. I was previously General Counsel of the
7 National Oceanic and Atmospheric Administration
8 where the method was first applied.

9 MS. KUHN: My name is Linda Kuhn, last
10 name is spelled K-u-h-n. I have two bachelors of
11 science degree; I'm a registered professional
12 geologist. And I have a doctorate in law.

13 I previously worked for the Texas
14 Natural Resource Conservation Commission for about
15 seven and a half years where I was the state on-
16 scene spill coordinator for spills of hazardous
17 materials and oil.

18 We worked routinely with natural
19 resource damages, and natural resource damage
20 assessment. Worked in the agency with development
21 of restoration and repair of habitat.

22 Subsequently became an environmental
23 consultant with the firm of Entrix. Worked with
24 Mr. Campbell and Mr. Friant. During that period
25 of time worked almost exclusively with the

1 development of restoration of projects in a
2 national practice.

3 Subsequent to that I am now a partner at
4 Campbell, George and Strong.

5 MR. ELLISON: Thank you. I'm going to
6 address the panel through the lead witness, Mr.
7 Johnson. If any of the members of the panel would
8 answer any of the questions differently than the
9 answer given by Mr. Johnson, please speak up.

10 On behalf of the panel, Mr. Johnson, do
11 you have before you exhibit 286, which is Duke
12 Energy's testimony regarding its habitat
13 enhancement program dated August 30, 2002?

14 MR. JOHNSON: I do.

15 MR. ELLISON: Do you have exhibit 287,
16 which is the habitat enhancement program and
17 attachments dated August 30, 2002?

18 MR. JOHNSON: I do.

19 MR. ELLISON: Do you have exhibit 298,
20 which is Duke Energy testimony in rebuttal to CEC
21 Staff regarding the habitat enhancement program
22 dated October 7, 2002?

23 MR. JOHNSON: Yes, I do.

24 MR. ELLISON: And lastly, do you have
25 exhibit 300, which is Duke Energy testimony in

1 rebuttal to CAPE regarding the habitat enhancement
2 plan dated October 16, 2002?

3 MR. JOHNSON: I have that, also.

4 MR. ELLISON: On behalf of the panel --
5 well, first of all, let me say that all of these
6 documents were docketed and served on the parties
7 on the dates that were specified in the
8 Committee's orders.

9 Mr. Johnson, on behalf of the panel were
10 these documents prepared by the panel or at the
11 panel's direction?

12 MR. JOHNSON: Yes, they were.

13 MR. ELLISON: Do you have any additions,
14 corrections or clarifications that you would like
15 to make to these documents at this time? Let me
16 say that we do have an errata handout which I'm
17 going to be sending around right now.

18 MR. JOHNSON: I do. I have three
19 general corrections. I can reference those.
20 They're shown in the handout that Peter's
21 distributing.

22 If you turn to page -- shall I go
23 through each of these, Chris? Is that --

24 MR. ELLISON: Why don't you go through -
25 - we have certain corrections that sort of require

1 conforming changes in the document. What I'd
2 recommend, Mr. Johnson, is that you describe the
3 basic issue, the basic correction, don't
4 necessarily have to go through all of the
5 conforming changes. The conforming changes are
6 set forth on the errata handout.

7 MR. JOHNSON: Okay. First correction is
8 to figure 13 of our HEP proposal; it's on page 68.
9 It's really a mislabeled data -- mislabeled graph.
10 Figure 13 shows credit on the top, and it should
11 be debit. And it shows debit on the bottom and
12 that should be credit.

13 Page 53, the third line, the first full
14 paragraph says the Exxon Bayway oil spill. That
15 should be the B.T. Nautilus.

16 On page 123 of the same document, table
17 1, there's a transposition error. This has some
18 corresponding conforming changes. If you look at
19 the table the maximum length for jack smelt is
20 shown as 7.6; that should really be 15.7, which is
21 shown as the maximum length for the white croaker,
22 those numbers should just be reversed. Jack smelt
23 should say 15.7 and white croaker should say 7.6.

24 It has a whole list of corresponding
25 changes that result from this transposition error.

1 In summary if you look at page 73, table 5 -- take
2 you to the last one -- that table 5, page 73, the
3 far right-hand column, if you look down it says,
4 now 107 percent benefit. Making that
5 transposition correction results in that value
6 going to 144.5 percent benefit.

7 And there are a number of corresponding
8 changes that go along with that.

9 MR. ELLISON: So to summarize that last
10 change as a result of the transposition in the
11 table for the lengths of the two fish that you
12 described, Duke's \$12.5 million proposed HEP
13 program results in an offset of entrainment
14 impacts equal to 144.5 percent of those impacts,
15 rather than the 107 percent --

16 MR. JOHNSON: Correct.

17 MR. ELLISON: -- that you thought, is
18 that correct?

19 MR. JOHNSON: That's correct.

20 MR. ELLISON: Given that change, let me
21 ask you, does that mean that Duke proposes to
22 change the \$12.5 million proposal that it has put
23 forward?

24 MR. JOHNSON: No. We stand by our \$12.5
25 million proposal. And additional conservative

1 margin is generated by this correction.

2 MR. ELLISON: With those additions,
3 corrections, clarifications are the facts set
4 forth in the exhibits identified earlier true to
5 the best of your knowledge?

6 MR. JOHNSON: Yes, they are.

7 MR. ELLISON: And are the opinions your
8 own, and do they represent your best professional
9 judgment?

10 MR. JOHNSON: They do.

11 MR. ELLISON: And does the panel adopt
12 these exhibits as their sworn testimony in this
13 proceeding?

14 MR. JOHNSON: We do.

15 MR. ELLISON: Would you please summarize
16 the Duke testimony, you and -- on behalf, as well
17 as the other members of the panel.

18 MR. JOHNSON: Yes. We have a PowerPoint
19 presentation that will cover my remarks to
20 summarize our testimony.

21 We have five general sections of our
22 presentation. The objectives of our habitat
23 enhancement program. The legal framework on which
24 it's based. The habitat enhancement program,
25 itself. Comparison of key issues between us and

1 the CEC Staff on the one hand, and the Regional
2 Water Board on the other. And some general
3 conclusions.

4 Let me start by summarizing the
5 objectives of our habitat enhancement proposal.
6 They're primarily to minimize the effects of
7 entrainment associated with the modernized plant
8 by reserving and preserving and restoring quality
9 and quantity of Bay habitat. Primarily through
10 the removal of existing built-up sediment in the
11 Bay, reducing stream-borne sediment transport into
12 the Bay, and reducing wind-driven sand migration
13 in the Bay.

14 And also to facilitate the
15 implementation of independently identified
16 enhancement projects; projects that have been
17 identified by the National Estuary Program, the
18 Regional Board, and the Army Corps of Engineers.

19 The first feature of our program is to
20 reduce the water use compared to the existing
21 plan. That's achieved in two general areas. One,
22 physical limitation. There's a maximum pump
23 capacity that would be installed. And also a
24 legal limitation, the maximum amount of permitted
25 water withdrawal for recirculation.

1 Our representative projects have been
2 selected and designed to reduce the sedimentation.
3 They're based on a sound scientific methodology to
4 determine impacts and scale of benefits. We have
5 a baseline of project-specific piece of
6 monitoring. And we also propose independent
7 program management.

8 With respect to the first bullet, I
9 think it's important to set the stage on the flow
10 comparisons between existing plant and proposed
11 new plant.

12 Go to the next slide. On the left-hand
13 side, the 725 million gallons a day represents the
14 existing permit limit for the existing Morro Bay
15 plant.

16 Going to the far right of the graph 370
17 million gallons a day on an annual average base;
18 this is the permit limit we have agreed to. And
19 you see the expected operating average which is
20 approximately 328 million gallons a day.

21 Next slide. The habitat enhancement
22 proposal again is to preserve and restore habitat
23 enhancement through sediment control. We're
24 offering \$12.5 million in funding for enhancement
25 projects. We have a number of conservative

1 estimates that were used to determine that number
2 from the ground up. We think that represents a
3 high margin for success.

4 Again, there's a sound scientific basis
5 to our approach to the habitat enhancement
6 program. We have independent program
7 administration. Our program meets or exceeds all
8 legal requirements. And as we just talked about
9 in the correction, we offset entrainment impacts
10 by approximately 140 percent. Our view is that
11 Morro Bay is better with habitat enhancement
12 program.

13 With that, I'd like to turn it over to
14 Meg to set the -- define the legal framework, as
15 we see it, relating to the habitat enhancement
16 program.

17 MS. ROSEGAY: Thanks, Kevin. Just to
18 reiterate quickly, the purpose of this
19 presentation is not to argue any of the legal
20 issues in the case, but simply to explain the
21 legal framework in which Duke's HEP was designed.
22 These remarks are offered as a statement of
23 counsel, and not as evidence.

24 We do recognize that there are a number
25 of legal issues related to the Committee's review

1 of the HEP that are in dispute, and that remain to
2 be decided. However, for purposes of this
3 presentation we have resolved these open issues
4 consistent with Duke's understanding of the law
5 and the Committee's August 30 order.

6 And with that, there are basically two
7 key statutes which are relevant to the review of
8 the HEP. Those are the California Environmental
9 Quality Act or CEQA, and the Federal Clean Water
10 Act.

11 Jumping right to the fundamental legal
12 conclusions that guided us in the development of
13 this HEP, first and foremost is that the habitat
14 enhancement program is a recognized means of
15 addressing entrainment effects.

16 EPA refers to these habitat enhancement
17 programs as broadly restoration measures, but we
18 use the terminology HEP.

19 The HEP is designed to meet all legal
20 requirements with a large built-in margin of
21 safety. It's technically sufficient in biological
22 terms to fully offset power plant entrainment
23 effects. And based on the Committee's August 30
24 order, there are no significant impacts to marine
25 biological resources under CEQA. And accordingly,

1 mitigation is not required.

2 The HEP is not designed around CEQA, and
3 the Committee's review of the habitat enhancement
4 program is really not predicated on CEQA.

5 Next slide, thanks. That brings us to
6 the Clean Water Act, which is the guiding body of
7 law for purposes of this exercise. There are
8 really two sections to that statute that are key.

9 Subsection (a) addresses thermal
10 effects. As Michael Thomas briefly reported,
11 thermal effects of this project have been found
12 not to be significant for purposes of the Clean
13 Water Act. And accordingly they are not addressed
14 by the HEP. And in any event, they are not
15 subject to the BTA requirements of the statute.

16 316(b) addresses impingement and
17 entrainment effects. Similarly, as with thermal
18 effects, the impingement effects have been found
19 not to be significant for Clean Water Act
20 purposes, and therefore the impingement effects
21 are also not addressed by the HEP.

22 On the other hand, entrainment has been
23 found to be an important effect. In Water Board
24 or Clean Water Act parlance, it's a quote-unquote,
25 "adverse environmental impact" which must then be

1 minimized through the application of best
2 available technology.

3 BTA consists of either technological,
4 operational and/or restoration and preservation
5 measures. These can occur singly or in
6 combination with each other.

7 The Regional Board is the lead agency
8 for purposes of implementing 316(b) of the Clean
9 Water Act. And we do believe that the Committee
10 may, and indeed, should defer to the judgment of
11 the Regional Board on the technical aspects of the
12 HEP.

13 Just a few points on BTA. This is a
14 site specific analysis which takes into account
15 the economic and technological feasibility of the
16 various cooling alternatives. It does require
17 consideration of non water quality related impacts
18 such as noise, consistency with local land use
19 requirements, cultural resources, air pollution,
20 et cetera.

21 And EPA has, as Michael described,
22 developed and used over time a test referred to as
23 the wholly disproportionate cost test. That is
24 where the costs associated with a particular
25 cooling alternative are determined to be wholly

1 disproportionate to the benefit to be gained.

2 That technology is considered to be unavailable or
3 infeasible.

4 The restoration and preservation
5 measures constituting the HEP, those types of
6 measures aren't allowed where alternative cooling
7 methods have been determined to be either
8 technically infeasible, not available or wholly
9 disproportionate from a cost standpoint.

10 With respect to the question of nexus,
11 it is important that there be an adequate nexus
12 between the entrainment effects and the mitigation
13 measures. But EPA does recognize in its
14 discussion of these restoration measures programs
15 that there are inherent uncertainties in those
16 programs, but there are ways to address those
17 uncertainties. And likewise they recognize that
18 there are many benefits which will inure to the
19 coast system through implementation of these
20 programs.

21 Last, a little more on the question of
22 nexus. It has two components, really, a legal
23 component and a biological component. The legal
24 standard is as set forth in that first sub-bullet,
25 which is that the mitigation measures must

1 maintain fish and shellfish at comparable or
2 substantially similar levels as would exist
3 without once-through cooling.

4 And I think it's important to note here
5 that I don't think that Duke has any difference of
6 opinion with respect to that Regional Board. We
7 do not believe there's a requirement for a larvae-
8 for-larvae replacement. Our HEP is not designed
9 around a larvae-for-larvae replacement concept.
10 It's focused more on an overall entrainment
11 reduction; 60 to 90 percent is the target which
12 EPA has identified in its phase two rules.

13 Lastly, on the biological nexus there is
14 a demonstrated connection between impacts and the
15 restoration and preservation measures which are
16 outlined in the HEP.

17 We think nexus is easily established for
18 the restoration and preservation measures occur in
19 the same areas, and they're initiated in the same
20 timeframe as the impacts. And where the entrained
21 species will benefit from the restored or
22 preserved habitats.

23 Thank you, and I'll turn it back to you,
24 Kevin.

25 HEARING OFFICER FAY: Before you go on,

1 excuse me, Mr. Ellison. Can you go back to page
2 9, perhaps the page before that. Maybe it was
3 page 9.

4 Ms. Rosegay, you indicated that the
5 Committee --

6 MS. ROSEGAY: Oh, yes, that's on the
7 next, starts with the next slide.

8 HEARING OFFICER FAY: The next slide?

9 MS. ROSEGAY: The last bullet there, I
10 think is the one you're referring to. The
11 Committee may --

12 HEARING OFFICER FAY: No, no, you said
13 something about the Committee has determined that
14 there are no significant impacts.

15 MS. ROSEGAY: I don't believe that I
16 said that. I didn't mean to say that. I --

17 HEARING OFFICER FAY: Okay, because that
18 is --

19 MS. ROSEGAY: No.

20 HEARING OFFICER FAY: -- a mistake. The
21 Committee determined what the appropriate baseline
22 was. And did not determine --

23 MS. ROSEGAY: I believe what I --

24 HEARING OFFICER FAY: -- anything --

25 MS. ROSEGAY: -- intended to say was

1 that based on the Committee's order it is Duke's
2 view that there are no --

3 HEARING OFFICER FAY: Okay.

4 MS. ROSEGAY: I'm sorry if I misspoke.

5 HEARING OFFICER FAY: That's all right.

6 Go ahead.

7 MR. JOHNSON: Let me start out by giving
8 a brief overview of the habitat enhancement
9 program, and I'll turn it over to my fellow panel
10 members to make additional remarks.

11 Again, as I said at the outset, our
12 proposal is designed to minimize the impacts of
13 entrainment, to preserve and restore the quality
14 of the Bay habitat, and facilitate implementation
15 of independently identified enhancement projects.

16 As we showed in our proposal of August
17 30th, our process or proposal consists of five
18 building blocks. Rather than go through each one
19 of those, which is a little hard to read, at least
20 for me, I'll go to separate slides on each of them
21 and talk through them. But this is a page out of
22 our August 30 proposal.

23 The first two building blocks really are
24 design features or permit limits of the new gen
25 facility to minimize impacts. And as I showed you

1 in one of the early slides, the water use,
2 recirculating water use for new gen will be
3 significantly less than is permitted for existing
4 gen. Approximately over 40 percent less. So
5 we've minimized the impacts of entrainment
6 associated with new gen.

7 The second piece of our habitat
8 enhancement program is identification of
9 representative projects, habitat enhancement
10 projects that could be used to mitigate the
11 impacts of new gen.

12 These were developed in part using the
13 habitat equivalency analysis we'll talk about
14 later in our presentation. And then also
15 selecting from a list of projects that you heard
16 discussed earlier this morning between Philip
17 Williams and the Regional Board.

18 The first group of projects are the
19 watershed projects. The goal of these projects is
20 to preserve Bay habitat by reducing sedimentation
21 that consists of three basic projects, Chorro
22 Flats II, Hollister Ranch and Cal Poly Walters
23 Ranch.

24 The activities that will be performed in
25 these projects will be control and reduction of

1 stream-borne sediments. And by our calculations
2 these offset approximately 57 percent of the
3 entrained biomass.

4 We forecast funding for these projects,
5 including project level --

6 (Audio difficulty.)

7 MR. JOHNSON: We propose a funding level
8 of \$5.6 million for these projects.

9 As Ms. Kuhn will discuss in a few
10 moments, there was some reference to low hanging
11 fruit early this morning, and I can tell you that
12 some of our projects represent highly efficient
13 projects that were discussed this morning, and
14 some of them represent fruit at the very top of
15 the tree. And we'll go through each one of those
16 in some detail.

17 The second block of projects are in-Bay
18 projects. These are to restore and preserve Bay
19 habitat. The projects are hoary cress and mud
20 flat removal and sandspit stabilization.

21 The activities that will be performed in
22 this suite of projects would be sediment removal
23 and stabilization. By our calculations these
24 projects would offset approximately 87 percent of
25 the entrained biomass. And we've allocated \$4.1

1 million of funding to implement those projects.

2 Those are the first three building
3 blocks of our proposal.

4 The fourth building block is really a
5 feasibility study designed to enhance the
6 knowledge of aquatic filter barrier technology for
7 projects. Under this study we would conduct a
8 feasibility study of a pilot scale AFB. This
9 study would be funded separately from the \$12.5
10 million HEP project. We do not intend to install
11 equipment and we do not see any construction
12 permits being necessary for this element of the
13 project.

14 The fifth and final block is really a
15 programmatic block that relates to a number of
16 different aspects of the proposal. And it really
17 has to do with the way the assumptions were
18 developed and the nature of the assumptions.

19 They can be grouped into three general
20 categories: conservative ecological assumptions;
21 conservative cost assumptions; and conservative
22 plant operation assumptions.

23 Under the ecological banner we use the
24 lower end of the energy transfer rate, 4 percent,
25 for example, instead of 10 percent. We'll get

1 into that in some detail in a moment. We took
2 credit for fish and shellfish production only, not
3 the other services provided by the restored
4 habitat. We used a linear maturity curve for the
5 restoration projects. We assumed that 100 percent
6 of the entrained organisms die and are lost from
7 Morro Bay solely due to the operation of the new
8 plant or replacement plant. And we used the
9 maximum length collected for each species as
10 opposed to the average length to calculate the
11 total weight of the biomass entrained.

12 We used conservative project cost
13 assumptions. We looked at independently
14 identified project costs; some by Philip Williams,
15 some by others. And we used the high end in each
16 case of those independently developed costs.

17 We increased the high end cost to
18 provide for management project specific
19 monitoring, and contingency for the implementation
20 of those projects.

21 The microphone is out again. Is this
22 on? There we go.

23 In addition to the project level
24 monitoring funds we provided, we added \$2.8
25 million in funding, programmatic funding to be

1 used at the discretion of the NGO to implement
2 these projects.

3 And, of course, we used conservative
4 plant operation assumptions, even though we have a
5 permit limit of 370 average million gallons per
6 day, we used the higher maximum number.

7 Let me take a moment and just talk about
8 monitoring. I know there was a good bit of
9 discussion about that this morning. We really
10 have two pieces of monitoring in our proposal.

11 We have a baseline monitoring which is
12 designed to add to the general understanding of
13 the condition of Morro Bay. And to also allow the
14 NGO to optimize the allocation of program funds.
15 This was really tied to the timing of the NPDES
16 permit cycle, five years.

17 In addition to that program level
18 monitoring, we have project specific monitoring
19 and management in the individual project budgets.
20 We'll get to that in just a moment. But that is
21 to be developed by an independent manager at the
22 time of the project selection to determine how
23 that specific project should be managed.

24 The purpose of that project level
25 monitoring is to document the successful

1 completion of the project. Was it constructed on
2 time, on budget, and in place.

3 We proposed to implement an independent
4 program management activity similar to that
5 proposed by the Regional Board Staff. I think the
6 nuance here perhaps is that it would be an
7 independent organization. We see it being a
8 nonprofit organization to qualify for matching
9 funds which we think will be readily available in
10 this case.

11 We also think an independent
12 organization is a good idea because it can provide
13 for adaptive and real time management decision on
14 how the project should be implemented, when they
15 should be implemented and how they should be
16 optimized.

17 We proposed a management and governor
18 structure for the independent organization that
19 would chaired by the Regional Board, but also
20 include the City of Morro Bay, California Energy
21 Commission and others. We also provided for a
22 technical advisory board.

23 The costs of program management are
24 included in our program contingency you see here.
25 And really the funding elements of our program

1 have to do with representative projects, the six
2 projects I just talked about, and their associated
3 specific project management and administration,
4 9.7 million; a program contingency of 2.8; those
5 summed are our total proposal of 12.5 million.

6 Our funding schedule is really tied to
7 plant construction. At the time foundations would
8 be poured we are proposing that 25 percent of the
9 9.7 or 2.4 million be allocated -- be provided at
10 the time commercial operation commences; 4.85
11 million, or 50 percent of the 9.7 million would be
12 provided. And within two years of commercial
13 operation, the remaining 25 percent of the
14 representative project number would be provided.

15 That would leave a \$2.8 million
16 contingency that would be allocated at the
17 discretion of the NGO, the independent
18 organization.

19 That summarizes our project habitat
20 enhancement proposal. We'll get into the details
21 of the habitat equivalency analysis and the
22 representative projects in a moment. But I'd like
23 to turn it over to Dr. Mayer to talk about the
24 biological nexus and some of the challenges to
25 Morro Bay that the habitat enhancement program

1 addresses. Dr. Mayer.

2 DR. MAYER: Thank you, Kevin.

3 PRESIDING MEMBER KEESE: Can I ask one
4 question just for a reference here. Do you have
5 an idea -- can you lead me to what the Regional
6 Board used? Did they use the same conservative
7 figures you used? Or, I mean I'll ask them that
8 later, but give me an idea of what you think.

9 MR. JOHNSON: Yeah, they have a slightly
10 different approach. In fact, later in our
11 presentation we have a comparison of the steps the
12 Regional Board took, or the steps we took to come
13 up --

14 PRESIDING MEMBER KEESE: Did they assume
15 that you're using the maximum amount of water
16 versus your permitted amount of cooling water?

17 MR. JOHNSON: I don't know that specific
18 question.

19 PRESIDING MEMBER KEESE: Okay, thank
20 you.

21 DR. MAYER: I have some remarks that I
22 will go through on these slides that I think will
23 help set the stage on the habitat enhancement
24 program that Ms. Kuhn and Mr. Campbell will
25 describe in more detail.

1 Just some remarks, reflections and for
2 context that Morro Bay is an active and highly
3 utilized ecosystem. It supports a wide array of
4 robust species that are typical of California's
5 coastal lagoons. Dr. Cailliet's earlier testimony
6 provided a species summary of primary from our
7 316(b) studies that were conducted in support of
8 this project.

9 The species that are able to withstand,
10 Bay species able to withstand natural fluctuations
11 in salinity and temperature and turbidity, for
12 that matter.

13 However, unnatural changes do also
14 challenge them. Changes related to navigation
15 dredging, which occurs on a fairly continuous
16 basis in harbors and marinas. But normally
17 species and habitats recover in a fairly short
18 period afterwards to dredging effects.

19 However, unnatural sedimentation for the
20 watershed has been identified as a major threat.
21 It's a more permanent change. It changes
22 elevations, and as we've heard earlier this
23 morning, again from PWA, Philip Williams and
24 Associates experts, this is easily identified.
25 And they have, in fact, forecasted the nature of

1 this threat.

2 A large number of local scientists and
3 stakeholders, the National Estuaries Program and
4 others, have clearly identified sedimentation as a
5 major threat to Morro Bay. Its effects are
6 widespread. And as sediment and lowers the light.
7 Sediment not only lowers the light penetration but
8 it can, of course, at the same time smother the
9 Bay's habitat and the species. And permanently
10 change the elevation of habitat.

11 The Corps, in fact, the Army Corps of
12 Engineers has undertaken both field and modeling
13 studies to look at some corrective actions to, you
14 know, hopefully assure the future of Morro Bay's
15 habitats.

16 And as we've discussed in some detail,
17 again, in exchanges this morning, local funding is
18 critical to these proposals and programs going
19 forward. Many plans sit on the shelf for lack of
20 funds, as I think Mr. Thomas pointed out.

21 The habitat enhancement program, a
22 couple features to keep in mind as we listen to
23 the more detailed presentation, it both restores
24 and preserves. That will be a necessary theme in
25 the way we actually approach the design of this.

1 I think we heard an analogy earlier this
2 morning. We hope that this project does not
3 become a dig-a-hole-and-fill-it-up kind of
4 project. So it's necessary to control sources of
5 input that might, in fact, offset the benefits of
6 restoration in the Bay, itself.

7 But keep in mind that about 70 percent
8 of our projects that you will hear about are
9 devoted to preservation. That is, preventing the
10 filling in of Morro Bay. The argument here is
11 simply no bay, no marine habitat, no marine
12 resources.

13 In my thinking this creates an almost
14 perfect nexus between a project to prevent the
15 loss of Bay habitat that are producing the
16 species, in fact, that are entrained by the power
17 plant. So we have a natural nexus, if you will,
18 between the two.

19 The controlled sediment preserves and
20 the removal of accumulated sediments restore, and
21 those are sort of the thematic descriptions and
22 ideas we have in mind, so that Duke agrees that
23 there is a direct nexus between the two, as was
24 discussed by the Regional Board this morning. And
25 the impacts from these two methodologies express

1 mitigation or a solution to these problems, both
2 in terms of habitat. And I think that's an
3 important commonality that's going to enable us to
4 find a common agreement for solution.

5 The habitat equivalency model, itself,
6 uses biomass as a calculation tool in order to
7 express both the impacts of the power plant and
8 the credit, if you will, that would arise from
9 habitat enhancement.

10 All of this, we feel, is -- we've even
11 heard from Ms. Rosegay this morning, is consistent
12 with EPA draft guidance on issues of both
13 mitigation and restoration.

14 Finally, we just want to -- as we listen
15 to a detailed presentation, that preservation
16 aspects are about creating the future and
17 preserving what's in place now. So the entrained
18 species, in fact, that are currently being
19 entrained will be preserved by this future habitat
20 so that the proportions in nexus we feel are, as I
21 said earlier, natural.

22 And the restoration and removal of that
23 will produce, in fact, this restored habitat. We
24 feel because of its proximity to the place that's
25 being restored, will have the same appearance and

1 functionality, if you will, and productivity, we
2 believe, as is currently there, and was there in
3 the past.

4 Habitat program benefits are obviously
5 over a long period of time. They are much broader
6 than we've identified in our calculations as Mr.
7 Campbell and Ms. Kuhn will point out to you. That
8 there is both a long aspect of the benefits we
9 expect, but we have focused just on those related
10 to the entrainment effects of the power plant.

11 With that I'd like to let Ms. Kuhn
12 describe for you -- do you want this pointer --
13 okay.

14 MR. ELLISON: Actually, Dr. Mayer,
15 before you give up the microphone, do you know the
16 answer to Chairman Keese's question about the
17 assumed cooling water use, the assumptions on
18 cooling water use that were used by Duke and by
19 the Regional Board?

20 DR. MAYER: I do. I was holding it in
21 reserve for my presentation.

22 (Laughter.)

23 DR. MAYER: The answer is we have used
24 the same volumes in our calculations, assumptions
25 about cooling water flow.

1 MS. KUHN: I feel a little silly because
2 everybody said that I'm going to give you a
3 detailed description of the projects, and the
4 first words you're going to hear out of my mouth
5 are that I'm going to give you a brief overview of
6 them.

7 I'll save the detailed discussion; I'm
8 sure we'll go through them in detail on cross.

9 I'd like to briefly describe the
10 projects and tell you a little bit about some of
11 the conservative assumptions that went into the
12 projects.

13 But before I do that I'd like to talk to
14 you a little bit about the project selection
15 criteria. As you probably all know, and if you
16 want to see a full comprehensive list of the
17 project selection criteria that we used, I would
18 refer you to page 31 in the HEP.

19 The representative projects are also
20 detailed in the HEP in section 5, if you want to
21 take a look at that, if you haven't already, on
22 page 71.

23 With regard to the project selection
24 criteria, I think one of the most important steps
25 that resource managers can do in their planning

1 restoration is develop a very good set of project
2 selection criteria. It's essential in helping you
3 minimize the risk associated with conducting
4 restoration and/or preservation.

5 These are the top four items that we
6 used when developing our projects that we were
7 going to propose in the HEP. We wanted to select
8 only projects that had a nexus or direct
9 relationship to the impacts of entrainment.

10 We also wanted to select projects that
11 based on their nature and the extent of the
12 ecological benefits that they were going to
13 generate. We weren't interested in selecting
14 projects that were going to provide benefits,
15 solely benefits that weren't relevant to what we
16 were trying to offset. And so the nature and
17 extent of those benefits were very important.

18 We also wanted projects that were
19 consistent with the restoration planning that's
20 already ongoing in Morro Bay. As you well know,
21 restoration planning is well advanced in this Bay
22 system. With Morro Bay National Estuary Program
23 they've done a very good job of developing a
24 comprehensive list of various actions that need to
25 be taken within the Bay system.

1 So it was important to us that we
2 leverage off the work that's already been done in
3 the Bay system in developing our package.

4 And last, and not least, is the
5 technical feasibility of the project, itself.
6 You've heard some of the panelists talk about,
7 from the other parties and from the Regional Water
8 Quality Board, their concerns about the technical
9 feasibility of some of the projects that are
10 available in Morro Bay, and some of the projects
11 proposed in our HEP.

12 And we took a serious look at that when
13 we were putting the package together. If the
14 project is technically feasible you seriously
15 minimize the risk of it not providing the benefits
16 that you'd like for it to provide.

17 So, what I want to do now is talk to you
18 a little bit about the package that we put
19 together, the HEP package, as far as the
20 restoration projects.

21 We refer to the projects collectively as
22 a set of representative projects. And what I mean
23 by that is that we try to select projects from
24 various locations throughout the Bay system. We
25 focused primarily on the Chorro Creek delta area,

1 a zone three, if you'll recall in PWA's graphic.

2 They had the Bay divided up into four zones.

3 Zone 3 and 4 of their report indicates
4 it's receiving the heaviest impact from
5 sedimentation. So we did -- while we looked at
6 projects throughout the Bay system, we focused on
7 those particular zones.

8 We also tried to select projects that
9 illustrated a collection of various restoration
10 techniques. You're going to hear us talk about
11 best management practices, sediment traps, moving
12 sediment and increasing Bay volume. Various
13 techniques, because we thought that was very
14 important. We didn't want to make our package
15 consist of solely one restoration technique.

16 We also tried to design the projects
17 such that they were a mixture of preservation and
18 restoration. We believe that preservation, if
19 you're preserving existing habitat you have a
20 higher degree of certainty. All restoration
21 projects, no matter how well planned or
22 implemented, have some degree of uncertainty.

23 And so we tried to present a collection of
24 those.

25 We also tried to present a collection of

1 in-Bay projects coupled with watershed projects.
2 You've heard several panelists say how important
3 it is if you're going to dig a hole to keep it
4 from filling in. We believe that. We endorse
5 that and think that's very well reasoned logic for
6 this system.

7 You're also going to see some of our
8 projects have differing cost efficiencies. And
9 what I mean by that is that for the dollars spent
10 they provide different levels of ecological
11 services.

12 We tried to provide a package that gave
13 you examples of different techniques and how cost
14 efficient they were at providing ecological
15 benefits.

16 At the end of the day what we ended up
17 is presenting a package that not only offsets what
18 we believe to be 100 percent of the impacts, but
19 actually approximately 144 percent of the impacts.

20 All the projects presented in our HEP
21 have already been identified by your other
22 stakeholders within Morro Bay area and the
23 resource managers; that being the Morro Bay
24 National Estuary Program, the Regional Water
25 Quality Control Board and Army Corps of Engineers.

1 And last, but not least, the fact that
2 these projects are simply representative of
3 actions that can be done in the Bay, and the
4 benefits that could be received by implementing
5 them.

6 We, nowhere in the HEP, insist that
7 these specific projects be done. And we leave
8 that to the discretion of the independent
9 administering agency or group.

10 This graphic was designed to illustrate
11 to you the relative benefits associated with in-
12 Bay restoration activities versus watershed
13 projects. We can see there are six projects
14 illustrated with the in-Bay being illustrated in
15 green and the watershed being illustrated in
16 purple.

17 That kind of graphically points out to
18 you that the in-Bay projects, as far as generating
19 ecological benefits, are more efficient. And for
20 the dollars spent in-Bay you get a little more
21 ecological benefit generated.

22 Okay, so here's an aerial of Morro Bay.
23 And what I want to do is take a second and point
24 out to you, I'm going to go through the watershed
25 projects first and briefly describe them to you.

1 The three watershed projects that we
2 proposed are the Hollister Ranch project, the
3 CalPoly project and the Chorro Flat project.

4 Now, two of these projects were
5 identified by the Morro Bay National Estuary
6 Program and I draw your attention here on the map
7 to the Chorro Creek and how it runs in this
8 general area. This entire area up here, as you
9 will recall from the PWA graphic displayed
10 earlier, is the drainage, the tributary drainage
11 to the Chorro Creek area along here.

12 HEARING OFFICER FAY: Ms. Kuhn, if you
13 could, try to be self conscious about how the
14 transcript will read.

15 MS. KUHN: Okay.

16 HEARING OFFICER FAY: Give a little more
17 description since we can all see the picture, but
18 I won't be able to see it necessarily with the
19 transcript.

20 MS. KUHN: Will do. Let me see, I'm
21 pointing to the Chorro Creek area, and this is
22 where approximately in the general area along the
23 Chorro Creek area is the location of the watershed
24 projects we've selected.

25 And here is a summary of the watershed

1 enhancement projects that we proposed in the HEP.
2 And as you can see from this graphic, the sum
3 total of dollars allocated by the HEP is \$5.6
4 million for these projects.

5 The key points I want you to be able to
6 take away from this is the Chorro Creek project is
7 a sediment trap project, low in the watershed.
8 Hollister Ranch project is a flood plane
9 restoration project, higher up in the watershed.
10 And the CalPoly Ranch project proposes restoration
11 activities that involve the implementation of best
12 management practices activities.

13 In the table you can see that the Chorro
14 Creek project provides a relative amount of 50 to
15 approximately 52 acres of preserved habitat. With
16 a cost ranging from \$400,000 to \$1.6 million.
17 When we went through and allocated our funding for
18 this particular project, we took the highest end
19 number of the construction costs, and we doubled
20 it. That results in an extra sum of money, \$1.6
21 million. That money is allocated to project
22 engineering, administration, monitoring and
23 corrective measures.

24 And I'd like to take this point and make
25 this point at this time that while we didn't spend

1 a lot of time in our HEP text talking about
2 project specific monitoring, in fact we do
3 allocate funding for that. And it's never been
4 our intent to not do project specific monitoring.
5 In fact, we believe that's necessary to
6 demonstrate this project's been done properly.

7 However, because the projects haven't
8 actually been selected, we thought it was
9 premature to talk about the project specific
10 monitoring in any detail.

11 Once again, and I'll take you over to
12 the description of Hollister Ranch; I'll run
13 through this very quickly. That project, the
14 restoration of flood plane on that property is
15 anticipated to result in the preservation of
16 approximately 27 in-Bay acres of habitat.

17 The construction costs range from
18 500,000 to 2 million. That was a very broad range
19 provided to us by the National Estuary Program.
20 This higher end range, 2 million, involved a
21 number of other restoration activities in addition
22 to just the flood plane restoration.

23 So, for construction costs we used an
24 approximate amount of \$1 million. Once again, we
25 doubled that amount to include all the

1 administrative functions of engineering,
2 monitoring, corrective measures.

3 For the CalPoly Walters Ranch project,
4 once again this was developed by the National
5 Estuary Program. It is the implementation of best
6 management practices on this approximately 800-
7 acre ranch.

8 They have estimated the cost to
9 implement these practices to be about \$250,000.
10 We almost doubled that amount and added an
11 additional \$150,000 to provide a total HEP
12 allocation funding of \$400,000.

13 Once again I'll point to the aerial of
14 the Morro Bay area. And attempt to show you on
15 this graphic the approximate locations of the
16 watershed, of the in-Bay restoration projects that
17 we propose in the HEP.

18 Going first to the upper tip of the
19 barrier island, what we call the sandspit area,
20 this general area is the general location of the
21 proposed sandspit stabilization project.

22 Next I would draw your attention to the
23 Chorro Flat delta area. Just beyond that is an
24 area that is characterized by extensive mud flats
25 and excessive sediment deposition. That would be

1 the proposed site of the mud flat removal project.

2 And then working from the Bay end of the
3 Chorro Flat delta of the Chorro Creek we see in
4 the near vicinity the twin bridges area. This is
5 the approximate location of the hoary cress
6 removal site. You may recall Dr. Haltiner showing
7 you a graphic of the location of that project.

8 And here's a summary of the in-Bay
9 enhancement projects. As you'll see, the total
10 cost allocated to these projects is approximately
11 \$4.1 million. Once again, it includes the hoary
12 cress removal. This project was identified by
13 Philip Williams in their report. It involves
14 sediment removal where sediment has accreted in
15 the Chorro Flat delta. It has taken what was
16 previously salicornia marsh and transitioned it
17 into with this noxious weed known as hoary cress.
18 It's approximately 18 acres.

19 Construction costs as developed by
20 Philip Williams range from \$350,000 to \$700,000.
21 We more than doubled that for a total allocation
22 of \$1.5 million for that project. The mud flat
23 was a removal, was a project developed primarily
24 by the Army Corps of Engineers in conjunction with
25 their ongoing study of restoration in Morro Bay.

1 It involves the removal of excessive
2 sediment buildups. It's approximately 16 acres in
3 size. Cost ranging from approximately \$500,000 to
4 \$1.04 million. We took that highest end of the
5 construction costs, once again, and doubled it to
6 address the other administrative details or
7 activities that have to occur for a total
8 allocation of \$2.08 million.

9 And last, but not least, the sandspit
10 stabilization project was identified by Philip
11 Williams in their report. It involves dune
12 stabilization and revegetation. This area suffers
13 an entire barrier island, for that matter, suffers
14 from migration of sand and in-filling of the Bay
15 by wind-driven forces.

16 This would involve the preservation of
17 approximately three acres of in-Bay habitat; cost
18 ranging from \$100,000 to \$250,000. Once again we
19 took the high end, doubled it for a funding
20 allocation of half a million dollars.

21 In summary I'd just like to make a
22 couple parting points if I can impress upon you
23 these important, these aspects that we believe are
24 important, it's that restoration and preservation
25 can be done in Morro Bay. And it can be done

1 successfully, as demonstrated by the Chorro Flat
2 project. If you will recall Dr. Haltiner putting
3 up those pictures showing how successful that
4 project was.

5 We believe it can be done if properly
6 planned and properly managed, and it can be
7 successful. And it can inure the Bay tremendous
8 benefit.

9 We believe that you have an existing
10 group of agencies and resource managers that are
11 responsible and capable of implementing these
12 projects, as allocated by the HEP.

13 The package creates a great deal of
14 flexibility for the resource manager, because as
15 you know, as you manage a resource sometimes you
16 have to employ adaptive management. In a long-
17 term management sense of the resources you need to
18 have the ability to implement projects that are
19 adaptive and respond to your resource needs.

20 Because your resource needs in the Bay
21 may change with time. And your manager of these
22 projects needs to have that flexibility. So
23 that's what we tried to create by giving you a
24 selection of various projects.

25 And we also think that it's really

1 important that we believe our package of
2 representative projects shows our commitment to
3 providing projects that are consistent with the
4 overall management goals of the Bay, that is
5 partly in the watershed, partly in-Bay, even
6 though watershed from our perspective costs more
7 money for the ecological benefit that was
8 generated, we're willing to commit funding to that
9 because we believe that it needs to be done.

10 That's all I have. I'll pass it back to
11 Kevin -- oh, I'm sorry, to Tom Campbell.

12 MR. JOHNSON: Tom, will you speak to the
13 habitat equivalency analysis?

14 MR. CAMPBELL: You had an opportunity to
15 see the projects that were used, now I'd like to
16 talk a little bit about how we used habitat
17 equivalency analysis to actually scale those
18 projects.

19 I'd like to tell you a little bit about
20 habitat equivalency analysis to start with. First
21 of all, it's a resource-to-resource replacement
22 model that has been used by resource managers.
23 It's a tool that's used to value ecological
24 service losses and service gains.

25 And as I'm struggling this morning how

1 to illustrate this, but as I sat in my motel room,
2 I realized that I was sitting in habitat. I had a
3 place to sleep; I had a way to have safety,
4 shelter, food came in a small breakfast basket in
5 the morning. Each of those were service flows
6 that came from that particular habitat.

7 The same is true in the environment.
8 The habitat equivalency analysis model is set up
9 to either scale the complete replacement of all of
10 those services or it can be used to focus on a
11 specific service that's been lost from the
12 habitat, and scale that loss.

13 And what it allows us to do is it allows
14 us to use it as a scaling tool for sizing
15 restoration projects to insure that we had an
16 adequacy of restoration-based compensation.

17 This was developed first at the National
18 Oceanic and Atmospheric Administration in 1991.
19 It subsequently has been used in a number of
20 different contexts. It's been upheld by the
21 courts. It's supported by the Department of the
22 Interior and numerous other state agencies.

23 It was developed really in response to
24 needs of resource managers. The dilemma was that
25 if they had a commercial answer impacted, they had

1 a way of dealing with those impacts. When they
2 dealt with wildlife impacts, how was the
3 appropriately scaled, the impacts to wildlife.

4 And essentially what habitat equivalency
5 says is that if you lose a habitat or a service
6 from the habitat, you can offset the impacts with
7 benefits created by restoration of similar or
8 comparable habitats.

9 And in essence, bullet number two points
10 out the fact that really we're not trying to get
11 to precision. You don't see that there's an equal
12 sign there. It says that the credit has to simply
13 be greater than the debit. Or in other words, the
14 benefit has to exceed the impact.

15 The types of impacts that have been
16 addressed with habitat equivalency analysis, when
17 I was at NOAA we had a situation where a treasure
18 salvager in the Florida Keys destroyed a large
19 area of eelgrass. We used habitat equivalency
20 analysis to determine how much eelgrass needed to
21 be restored in order to be able to offset the
22 impact that he had caused.

23 Now, we've done it with coral reefs.
24 We've also used it in wetlands areas. We've also
25 done it to address specific issues where a

1 specific portion of the services that a habitat
2 provided were lost. Like for example, loss of
3 biomass, as we have in this particular situation.

4 In addition to that, it's been used to
5 deal with long-term contamination. Also acute
6 contamination and other impacts.

7 Essentially the four elements that you
8 need is you got to have a nexus. And we've heard
9 a lot about nexus in the last little while, and
10 I'm sure we'll continue to hear a great deal about
11 it. But there has to be a relationship between
12 the impacts and the benefits.

13 There has to be a metric, that means a
14 common unit of measurement that is common to both
15 the impacts and the benefits. You got to look at
16 the debit side of the equation, which looks at the
17 impacts, but it also includes an element in there
18 for time. Because oftentimes the impacts don't
19 occur all at once; they occur over a period of
20 time. And oftentimes on the other side your
21 credits don't accrue all at once; they occur over
22 a period of time. So you have to have some way of
23 being able to equilibrate the debits and the
24 credits with that common metric.

25 What we've done in applying it to the

1 Morro Bay situation is the nexus here is fish and
2 shellfish biomass. And stated simply and
3 succinctly, just as the Morro Bay Power project
4 removes fish and shellfish biomass from the
5 system, the HEP will produce fish and shellfish
6 biomass through the preservation or the
7 restoration of marsh and eelgrass habitat.

8 The metric that we've used is weight,
9 simply the kilograms of fish and shellfish biomass
10 on both sides. The kilograms taken out of the
11 system through entrainment; the kilograms brought
12 into the system as a result of habitat
13 restoration.

14 The debit is based upon the total weight
15 of the entrained fish and shellfish larvae. It
16 doesn't require a population data, so we avoid the
17 PM arguments that occurred in earlier meetings.
18 We don't limit it to gobies, but we include all
19 fish and shellfish larvae.

20 On the credit side we look at projects
21 that either preserve or restore the same habitat
22 that produces fish and shellfish biomass within
23 the Bay.

24 Now this is an illustration of the
25 service flows that come from a habitat. Here we

1 have the giant food web, and all we are taking
2 into consideration in our model are the service
3 flows that go out to create invertebrates and
4 fish.

5 In addition to those benefits you have
6 significant additional benefits that are provided
7 by the habitat that we did not take credit for.
8 For example, migration, the ability for fish to
9 come into an area and have a place while it's in
10 transit to another location.

11 Feeding, a place for it to feed.
12 Spawning, we've heard about different fish species
13 that actually use the eelgrass in the salicornia
14 marsh as a spawning area.

15 Another fact that's kind of obscured but
16 still important, there are other benefits we did
17 not take into consideration -- we did not take
18 credit for epibiotic productivity. That means we
19 didn't take into account the benefits that were
20 associated with the algae that is produced within
21 these systems that is a food source for some of
22 the biota within the system.

23 We didn't take into consideration the
24 stabilization. We didn't take into consideration
25 you have export resources that go out in the form

1 of living biomass to adjoining systems, or
2 detrital biomass to adjoining systems.

3 So, again, the take-home point from this
4 line is we only took into consideration in our
5 model two service flows that came from the habitat
6 that we were either restoring or preserving.

7 Now, let's take a look at how the model
8 worked. Essentially on the debit side of the
9 equation on step one what we did is we converted
10 the 316(b) estimated entrainment numbers to
11 biomass. In other words we took the raw numbers
12 that had already been generated. We didn't get
13 into the PM discussion.

14 We determined what the total biomass
15 that was being consumed on an annual basis would
16 be, and then we took the total kilograms and we
17 discounted that amount. We calculated what it
18 would be over the life of the plant, and then we
19 discounted it back to a present value.

20 And the reason we do that is so that it
21 can be appropriately compared and that will become
22 more apparent as we go over the credit side of the
23 equation.

24 On the credit side what we did is we
25 estimated the primary productivity of the habitat

1 that was being preserved or created. And what
2 that simply means is the green biomass that's being
3 created. When you have eelgrass you've got the
4 biomass, the green biomass is created there. And
5 when you have salicornia marsh you have the green
6 biomass that's created by the salicornia plants.

7 What the literature demonstrates is that
8 there is a relationship between the total amount
9 of green biomass that you have to the amount of
10 invertebrate biomass that is created by that green
11 biomass.

12 In other words, put very simply, the
13 invertebrates are able to consume a portion of the
14 green biomass and convert it into invertebrate
15 biomass. And then beyond that it goes into fish
16 biomass.

17 And then what we did is we took that
18 biomass figure as to what an acre of habitat would
19 create; we projected it over time for the life of
20 the project. And then we discounted it back to
21 present value.

22 So in step number six, this being the
23 nexus, we estimated what -- we now know what the
24 debit was going to be. We then estimated the
25 amount of habitat acres that would be sufficient

1 to evaluate the service credit necessary to offset
2 the debit.

3 Now, what this relies on is that there
4 is what was referred to earlier as tropic level
5 energy transfers. And I wish I had the gift that
6 our previous speaker, Dr. Cailliet had, to make
7 complicated things seem simple.

8 But here essentially what we're saying
9 is eelgrass and coastal marsh creates a certain
10 amount of energy. And that energy goes into its
11 green biomass. That is eaten by invertebrates,
12 crabs, snails, and some of it's eaten directly,
13 some of it is eaten after there's been microbial
14 degradation.

15 And then some of the energy from the
16 invertebrates is actually consumed, these
17 invertebrates are consumed by the fish and there's
18 a transfer into fish biomass. And there is
19 literature that indicates what these transfer
20 rates ought to be.

21 And what we find is about 4 percent of
22 the green biomass is actually transferred into
23 invertebrates, crabs and snails. And that out of
24 that invertebrate biomass only 10 percent of that
25 actually makes it into fish.

1 So, if you're looking at eelgrass and
2 you look at the total amount of eelgrass that you
3 have, you can determine the amount of
4 invertebrates that that will create by taking 4
5 percent of the biomass there. Or if you want to
6 determine fish, you take .04.

7 And this is used -- these figures that
8 we have here, this 4 percent figure is the lowest
9 figure that we have reported in the literature. It
10 comes from the NOAA damage assessment regs, type A
11 regs. And this 20 percent number we could have
12 used, which is double what we in fact used, and
13 this is one of the conservatisms, we only used a
14 10 percent number.

15 So in both instances we could have used
16 a 10 percent number here and a 20 percent number
17 here, but we chose to use the 4 percent number
18 here and the 10 percent number here. So we
19 believe that this is, indeed, a very conservative
20 estimate.

21 So, what that translates to on the
22 bottom line is that over the lifespan of the
23 plant, over 50 years, this is the amount of fish
24 larvae biomass that will be entrained. This is
25 the amount of crab larvae biomass that will be

1 entrained.

2 In order to be able to offset that we
3 need to be able to create habitat -- excuse me,
4 restore or preserve habitat. And for each acre
5 of, in this case, restored habitat you get 2232
6 kilograms per acre per year. And that allows us
7 to know that we're going to have to have 38.6
8 acres of habitat in order to be able to know that
9 we'll be producing this amount of fish biomass.

10 The same thing is true, a different
11 factor using for the crab, because the crab is
12 more efficient in consuming the primary
13 production. And as a result we have 3.4 necessary
14 to offset the crab biomass, resulting in a total
15 of 42 acres needed to be restored.

16 We used what we believe very
17 conservative assumptions. We did not consider the
18 fact that some of the larvae that was carried out
19 of the system by the power plant would have, in
20 fact, otherwise have been carried out of the
21 system by the tidal action.

22 We used the 413 mgd number rather than
23 the permit rate of 370. We used the maximum
24 length of all of the collected species to
25 calculate the weight of biomass entrained figure

1 so that the debit correctly reflected the maximum
2 amount of the total biomass loss through
3 entrainment.

4 On the credit side we deferred the
5 realization of these projects for two to five
6 years. The impacts, of course, don't begin until
7 the plant actually begins its operation. So we
8 feel like there's a significant amount of time to
9 allow for the projects to get into place and begin
10 to provide their benefits.

11 We used the low end of the energy
12 transfer rates. We used 4 for crabs and
13 invertebrates; and 10 for fish instead of the 20.
14 We calculated credit for fish and shellfish larvae
15 production only. And if you'll recall, all of the
16 habitat services that were described in what I
17 refer to as the bubble chart, we only took credit
18 for a small fraction of the total services that
19 were provided.

20 And in terms of the recovery we used a
21 linear curve which we believe to be conservative.
22 And we selected representative projects, some of
23 which didn't provide the biggest benefit for the
24 lowest cost.

25 But what we were trying to do is to

1 illustrate that yes, restoration in this
2 particular area, was, in fact, possible. And that
3 it could be appropriately scaled.

4 Again, HEA is an accepted methodology,
5 accepted by a number of agencies and used in a
6 number of different contexts. We have an
7 appropriate nexus to the entrainment impacts. It
8 has been conservatively applied as it relates to
9 the Morro Bay Power Plant, and the results
10 indicate 144 percent offset of impacts.

11 Simply stated we feel quite comfortable
12 that the credits, and that a reasonable resource
13 manager could determine that the credits
14 associated with the HEP program offset any impacts
15 that may have resulted from entrainment, and that
16 will result from entrainment resulting from the
17 modernization.

18 MR. JOHNSON: Thank you, Tom. Next-to-
19 last section of our presentation is a comparison
20 of key issues. The first piece is comparison of
21 our methodology to that of the Regional Board,
22 which will put some context to your question,
23 Commissioner Keese.

24 And then also a brief summary of our
25 funding package versus the funding package

1 proposed by the CEC Staff.

2 So I'd like to ask Dr. Mayer to discuss
3 our approach compared to the Regional Board.

4 DR. MAYER: Thanks, Kevin. Our HEP
5 analysis, that is Duke's HEP analysis, are not
6 only conservatively applied, as Mr. Campbell has
7 kind of led you through their reasoning and
8 rationale for that and just described to you, but
9 we also believe the results have the strength of
10 commonality between two methods of calculation.

11 And the two methods we're talking about
12 is Duke's HEP calculation and the Regional Board
13 calculation of effects and mitigation that was
14 described this morning by Mr. Thomas.

15 I want to compare the similarity of the
16 two methods for us so we can appreciate both
17 commonality and the differences. And so what I'll
18 ask you to do is kind of follow along with me as I
19 need to make this comparison across three slides.
20 So we're going to move from left to right and
21 continue onto the next three.

22 The onset of both methods lead us very
23 simply, we're asking about the water use, we share
24 a commonality, we both use the same amount of
25 water assumption in the model. All the way

1 through this part of the model are really in step.

2 We take the total amount of water that
3 we expect to be going through the power plant on
4 an annual basis, the maximum amount. Take the
5 density or concentration of larvae and crabs, and
6 these are numbers that were both the same in both
7 models from the 316(b) report.

8 We multiply the two together to get the
9 total number either of -- well, total number of
10 larvae of both crab and fish. And in doing that
11 we also assumed for the numbers of larvae that we
12 use the maximum age, which down here we also used
13 the maximum weight of the larvae in our estimates.

14 So that gives us, at this end of the
15 equation then, we've arrived here by a difference
16 of the biomass expressed from the number of crab
17 and larvae entrained as opposed to the number of
18 larvae entrained by using the Regional Board
19 method.

20 We used a method here called
21 proportional mortality. That has been discussed a
22 great deal in the earlier hearings.

23 In the Regional Board method again we're
24 comparing now the use of numerical answers in
25 terms of the number of fish and crab entrained

1 from the source water. And in the HEP model we're
2 using biomass which has been converted from those
3 same numbers.

4 We then convert in both models the PM
5 habitat acres needed to produce those entrained
6 larvae, and those are done either as a fraction of
7 the habitat in Morro Bay or as the actual biomass
8 that Mr. Campbell has just described to you, that
9 would be necessary to offset the entrainment.

10 PM mitigation following the Regional
11 Board method then expresses this proportional
12 mortality in the form of the number of acres or
13 acre years, which I'll show you in just a moment,
14 by multiplying this proportional mortality which
15 the maximum number that was in use in that was .33
16 times the number of acres contributing to the
17 production of larvae that are entrained by the
18 power plant, which we heard from Philip Williams
19 this morning is now estimated to be 1725 acres.

20 On the bottomline the biomass again
21 calculated from the same number of organisms going
22 to the power plant and the same amount of water
23 assumed to be used by the power plant leads us to
24 a mitigation offset of 117 acres.

25 You might wonder the difference between

1 the 569 and 117. The point I want to make here, I
2 think this is an important one, is that this
3 amount, these acres up here are generic acres in
4 Morro Bay. They could be open channel; they could
5 be under the piers and wharves; they could be
6 mudflat, eelgrass or salicornia marsh.

7 In the biomass approach here, using the
8 HEP analyses, we have targeted specifically the
9 most productive acres to be those acres used in
10 the offset or mitigation. And comparing the two
11 would be comparing basically a \$5 bill to a \$1
12 bill.

13 Using the 569 acres then estimated from
14 the Regional Board method and the PM expression of
15 entrainment effects, the 117 acres of eelgrass, we
16 multiply both at this stage now, both methods back
17 expressed in the effects in terms of habitat,
18 times the 50-year life of the power plant. And
19 that gives us this estimate of acre years or, in
20 other words, the PM debit over the life of the
21 power plant.

22 And on the bottomline expressed in terms
23 of biomass the service acre years over the life of
24 the power plant. So we would multiply both of
25 those out. And that would give us, then, the

1 estimate of the habitat that we'd be wanting to
2 restore or preserve, but primarily preserve in our
3 methodology of projects to offset the effects of
4 the power plant.

5 The Regional Board and Duke's methods
6 are similar and lead to the same basic conclusion
7 that a reasonable HEP program would offset the
8 effects of the Morro Bay entrainment impacts from
9 the cooling water intake system.

10 In acres in the Regional Board
11 methodology are generic acres, while acres in
12 Duke's methodology or the HEP procedure
13 methodology provides high productivity acres. It
14 is based on that assumption.

15 Differences in the PM estimates affect
16 the Regional Board method but not Duke's method.
17 In other words, Duke has gone straight from the
18 number of organisms entrained in the power plant
19 converted into biomass.

20 In the Regional Board method the
21 estimate of proportional mortality is a function
22 of a number of assumption is that go into the
23 source water, and the exposure and risk of larvae
24 to entrainment.

25 But setting that aside, we've looked at

1 and agreed to the idea that we would compare the
2 two at the highest proportional mortality level.

3 The Regional Water Quality Control
4 Board's estimate of \$12 million to \$25 million
5 range, that encompasses the total cost of the TMDL
6 program, as we heard this morning. There's a
7 missing word there. It is not the cost of the HEP
8 needed to offset the Morro Bay entrainment.

9 With that I think I'm going to turn this
10 over to Kevin Johnson, who will then elaborate
11 more on the cost and the funding of these
12 projects.

13 MR. JOHNSON: Thank you, Dave. I have
14 two slides here to compare our funding proposal to
15 that advanced by the CEC Staff.

16 A couple of things first. Our proposal
17 is based on independently identified estimated
18 costs. We've taken the high range of those costs
19 and to that added allowances for program
20 management, engineering and administration, as
21 Linda indicated earlier.

22 We believe the CEC Staff's estimate of
23 funding are really without evidence and probably
24 over-reaching in their scope. And I'd like to
25 just take a moment and compare those two.

1 If you look at the in-Bay project number
2 you can see the subtotal there, 4.08. That was
3 from a previous slide that we discussed. And it
4 had two elements, a base cost \$1.99-, almost \$2
5 million, and a contingency of an additional \$2
6 million that we're labeling here as contingency,
7 but would be used for engineering program
8 management, et cetera.

9 Similarly on the watershed we proposed
10 \$5.6 million representing base cost of 2.85 plus a
11 similar contingency. The base cost that's the sum
12 of the 1.99 of in-Bay and the 2.85 totals 4.84
13 million or almost \$5 million.

14 And so at a project funding level the
15 CEC Staff has proposed \$19 million of project
16 funding which is roughly three times the base
17 cost. Again, the base cost, in our view, are what
18 the actual construction costs will be of these
19 projects, based on independent estimates of PWA
20 and others.

21 Next slide. Again, the total project
22 funding that we've proposed is 9.7; CEC Staff
23 19.4. Program contingency, we had, as I indicated
24 earlier, 2.8; the staff has proposed \$6 million.
25 So the total HEP funding program, from our

1 perspective, is 12.5 million. The comparable
2 number to the staff is 25.8.

3 Monitoring. We do have a programmatic
4 monitoring number that you've seen in the
5 proposal. I think today we've outlined that there
6 is project-specific monitoring. And in the
7 previous cost the staff has proposed \$8 million
8 for monitoring.

9 Program administration. We believe is
10 included in the project level as well as a piece
11 of the program contingency that could be allocated
12 to program administration or project optimization
13 by the NGO. The staff has proposed \$4 million.

14 So our total proposal comes to \$12.7
15 million roughly. The staff's proposal is 37.4
16 million, which is roughly eight times the base
17 cost of the watershed and in-Bay projects.

18 Let me do two final slides. I think
19 that will conclude our presentation or summary of
20 our proposal.

21 This table identifies the way we see it,
22 the differences between the parties on this issue.
23 If you follow across the top line with me, our
24 preferred and recommended mitigation is habitat
25 enhancement.

1 We've heard from the Water Board today
2 that they also -- the Water Board Staff that they
3 also support habitat enhancement.

4 The CEC Staff is clearly at alternate
5 cooling. The City of Morro Bay opposed alternate
6 cooling. And CAPE, of course, is at alternate
7 cooling.

8 We think the nexus is very clearly
9 demonstrated. That's been our position, we
10 believe, has been endorsed by the Regional Board
11 Staff. It's not clear to us whether the CEC Staff
12 supports the nexus or not. They seem to imply in
13 their summary that at 37.4 million there is an
14 adequate nexus.

15 The City of Morro Bay is silent on that
16 issue. And CAPE obviously believes it's not
17 adequately demonstrated.

18 Monitoring. Our proposal includes both
19 baseline and project specific. So does the
20 Regional Board Staff. And CEC Staff obviously has
21 baseline and performance level monitoring.

22 Our program funding from the previous
23 presentation is 9.7; the Regional Board Staff,
24 we're not sure how much of the 12 to 25 million
25 that they've identified for TMDL work would be

1 appropriate for habitat enhancement funding
2 associated with the modernized plant. And the
3 staff, of course, is at 19.4.

4 Monitoring and contingency. We have the
5 \$2.8 million number. The Regional Board Staff has
6 a 2.5, that's, I think, 500,000 over five years.
7 And the staff is at 18.9.

8 Our funding is fixed and phased to be
9 tied to the time when the actual impacts occur.
10 It's also fixed to allow the NGO and other
11 interested stakeholders the opportunity to go out
12 and obtain leverage financing for the projects.

13 The Regional Board Staff is fixed and
14 upfront, of course. And the CEC Staff is subject
15 to some adjustment.

16 The points we'd like you to take away
17 from our presentation are that number one, the
18 modernized plant reduces entrainment impacts. Our
19 habitat enhancement program complies with all laws
20 and regulations. It provides a clear and simple
21 nexus between modernized plant impacts and
22 mitigation.

23 The habitat enhancement proposal is part
24 of the solution. It's consistent with NEP
25 priorities and the TMDL identified by the Regional

1 Board. It provides needed funds to begin
2 implementing some of these projects that have been
3 planned for many years. And it fundamentally
4 deals with the declining resource and diminishing
5 habitats.

6 We think our proposal more than
7 compensates for the impacts associated with the
8 modernized plant to the tune of approximately 140
9 percent. And we firmly believe that habitat
10 enhancement program is the best option for Morro
11 Bay.

12 MR. ELLISON: Thank you to all the
13 members of the panel. Let me now ask you, as a
14 panel, a few clarifying questions to clarify the
15 record with respect to certain specific concerns
16 that have been raised about Duke's HEP proposal.

17 The first, I'd like to refer you -- and
18 I'll address these to Mr. Johnson -- refer you to
19 exhibit 304, which is the staff's supplement to
20 the final assessment part three. And specifically
21 to page 22.

22 In the section entitled, restoration
23 project funding, the staff begins by stating:
24 Staff believes that the applicant's success of 100
25 percent to be achieved by every project undertaken

1 is overly optimistic."

2 And then further down the page you'll
3 see in the case of the applicant's proposed HEP,
4 staff estimates that a 50 or 60 percent success
5 rate is reasonable and recommends using this
6 assumption to develop a more realistic mitigation
7 value.

8 Do you see that?

9 MR. JOHNSON: I do.

10 MR. ELLISON: What is the panel's
11 response to that statement?

12 MS. HOLMES: Excuse me, I'd like to just
13 ask a question of the Hearing Officer here. It
14 was my understanding that Duke had the opportunity
15 to file rebuttal testimony to this. And I'm just
16 wondering why it wouldn't be appropriate to tell
17 Duke that that was the appropriate place to put a
18 response to that.

19 HEARING OFFICER FAY: Well, I --

20 MS. HOLMES: I don't want to get into a
21 big argument about --

22 HEARING OFFICER FAY: Okay, let's
23 continue and see how far this goes. If we get
24 into big problems with new information, I'm going
25 to exclude it. But, I'd like to just, you know,

1 try to move ahead for now, keeping in mind the
2 concern.

3 MR. JOHNSON: I'd ask Tom Campbell to
4 respond to the question.

5 MR. CAMPBELL: Could you repeat the
6 question?

7 MR. ELLISON: The question is with
8 reference to -- do you recall the statement that I
9 read from the staff?

10 MR. CAMPBELL: Correct.

11 MR. ELLISON: It's on page 22; it refers
12 to an applicant's alleged assumed success rate of
13 100 percent, and a proposal for a success rate of
14 50 to 60 percent.

15 MR. CAMPBELL: Right. I think that this
16 is a confusion between the concept of trying to
17 provide a single service back in the system. Here
18 we've lost fish and shellfish biomass. We're not
19 talking about the overall productivity of the
20 habitat. We're talking about its capacity to
21 generate a fixed amount of fish and shellfish
22 biomass. And we believe that the energy transfer
23 rates are sufficiently conservative to indicate
24 that we will hit that full production of 100
25 percent. And in some years we'll probably exceed

1 it.

2 MR. ELLISON: Did you make a 100 percent
3 success rate assumption? Or did you make an
4 assumption of a 4 percent energy transfer rate?

5 MR. CAMPBELL: We made an assumption of
6 a 4 percent energy transfer rate and a 10 percent
7 energy transfer rate as it related to fish. And
8 there's no assumption that the habitat would be
9 functioning at 100 percent of its overall
10 productivity. Just those service flows. Just
11 those service flows would be meeting those target
12 numbers.

13 MR. ELLISON: Next I'd like to refer the
14 panel to page 11 of the staff testimony. And the
15 last sentence just above the section the HEA
16 metric and assumptions, staff states: Duke does
17 not fully explain many of the critical assumptions
18 made." And then it goes on to say, and this is
19 what I would like you to focus on: And the
20 assumptions consistently overstate the benefits of
21 the HEP projects, but underestimating the time to
22 full productivity of the habitat; overestimating
23 the productivity of the habitat; and
24 overestimating the lifespan of a project."

25 Do you see that?

1 MR. CAMPBELL: Yes, I do.

2 MR. ELLISON: Would you summarize the
3 applicant's rebuttal to that comment?

4 MR. CAMPBELL: I think that given the
5 timeframes we provided that we have appropriately
6 estimated our time to productivity that would be
7 sufficient to meet our goals as it relates to
8 biomass production.

9 And I think that in terms of the
10 lifespans of the project, I'd like to refer that
11 question to Linda Kuhn.

12 MS. KUHN: And can you ask me that
13 question specifically about the lifespan? You're
14 asking how have we dealt with lifespans?

15 MR. ELLISON: Yes. The allegation is
16 that Duke has overestimated the lifespan of the
17 projects. Could you just briefly summarize what
18 Duke has previously put in its written testimony
19 about what assumptions you made about the lifespan
20 of the projects and why you think they're
21 appropriate.

22 MS. KUHN: Sure, and I would refer you
23 to page 132 of the HEP, through 135. We have a
24 table of all the input parameters that we used.
25 In those tables you'll see we used various

1 lifespans for the various projects.

2 A couple of projects we projected a 100-
3 year lifespan; for a couple of them 50-year
4 lifespan; and for a couple of them 30-year
5 lifespan.

6 And the point, those are really more
7 illustrative numbers. The model is not really
8 sensitive to lifespan inputs greater than 50
9 years. So, when we put a lifespan of a project
10 100 years, for example, for the hoary cress
11 project, the reason that's put in there is because
12 that particular project, because of the habitat
13 type that is there, being a wetland, it is
14 protected under current regulations, as well as
15 under public ownership. And we believe that that
16 project, we can expect that that project will
17 persist in its restored state for 100 years.

18 However, the model does not really
19 attribute a lot of additional credit for lifespans
20 beyond 50. That's really more illustrative of the
21 fact that that project has some unique aspects to
22 the property ownership and its location.

23 MR. ELLISON: And with respect to the
24 allegation that Duke overestimated the
25 productivity of the habitat, the productivity of

1 the habitat is essentially the energy transfer
2 rate assumption, is that correct?

3 MR. CAMPBELL: It starts with the
4 primary productivity; then goes to the energy
5 transfer rates for both invertebrates and for
6 fish. And we feel like those are conservatively
7 estimated.

8 MR. ELLISON: Okay. In fact, you took
9 the lowest estimates that you were aware of, isn't
10 that correct?

11 MR. CAMPBELL: As it relates to the
12 tropic transfer rates, that is correct.

13 MR. ELLISON: Further down on page 11 of
14 staff's testimony, at the very bottom staff
15 testifies that, quote, "The HEP relies upon
16 habitat mapping that is no longer accurate."

17 Did you rely upon habitat mapping? And
18 secondly, would the map that was shown to you at
19 the workshop change any of the assumptions that
20 you've made in developing the HEP?

21 MR. CAMPBELL: The simple answer to that
22 is no. What we relied upon was the information as
23 it related to the benthic topography, the way the
24 Bay was in-filling, and the fact that in certain
25 areas, unless sedimentation is stopped certain

1 areas of the Bay will actually in-fill to such an
2 extent that they will no longer be viable for
3 certain types of habitat in the future.

4 For example, the hoary cress area is an
5 area that is transitioning into terrestrial
6 habitat. It doesn't provide a tremendous amount
7 of aquatic benefit.

8 There are other areas that are
9 comparable to that where similar things will be
10 happening. Excuse me, not will be, are happening
11 right now.

12 MR. ELLISON: Okay, two more questions.
13 At the top of page -- actually the bottom of page
14 10 and the top of page 11 of the staff testimony
15 they testify that HEA is typically applied to
16 habitat-based impacts, whereas the impacts
17 ("debits") in Duke's application are simply
18 biomass with no habitat, i.e., area bases. This
19 complicates the HEA and is not a standard
20 application of the method."

21 Do you see that?

22 MR. CAMPBELL: Yes.

23 MR. ELLISON: Do you agree that the HEA
24 analysis is complicated by the use of biomass
25 rather than a habitat-based impact?

1 MR. CAMPBELL: I don't agree with the
2 characterization that it complicates it. And I
3 think HEA can be applied equally well to the
4 replacement of all of the habitat where it can be
5 used in order in order to be able to target a
6 specific service flow that is being taken out of
7 the habitat.

8 In this case biomass is being taken out
9 of this habitat. And now the question is how much
10 habitat is going to be necessary in order to be
11 able to offset that biomass that's being taken
12 out.

13 MR. ELLISON: And finally, last issue,
14 if I could ask you to refer to the appendix A to
15 the staff testimony, and specifically at page A-6.
16 In the third full paragraph -- and the appendix is
17 Dr. Ambrose's review of the HEP program -- Dr.
18 Ambrose in the third paragraph discusses the need
19 to subtract the productivity of converted habitat
20 from the final habitat when you are converting mud
21 flat to eelgrass. Do you see that?

22 MR. CAMPBELL: Yes, I do.

23 MR. ELLISON: Did you, in fact, subtract
24 that productivity, or could you comment on how you
25 handled that issue?

1 MR. CAMPBELL: We feel that it is
2 appropriate to subtract values on pre-existing
3 habitats. We felt though, in this particular
4 instance, that the fact that we were not taking
5 credit for any epiphytic epibiotic production from
6 any of the habitats restored or preserved, that
7 that more than offset the productivity that was
8 associated with the mud flats.

9 MR. ELLISON: Had you taken that service
10 into account and made the subtraction that Dr.
11 Ambrose recommends, what would have been the
12 effect on the HEP?

13 MR. CAMPBELL: Precisely I can't say,
14 but in the HEP appendix G, page 150, I'd quote,
15 "Several investigators have reported that
16 epiphytes can contribute to the total primary
17 productivity of eelgrass by 18 to 22 percent. It
18 has also been reported that at times epiphyte
19 biomass can equal or exceed the biomass of
20 eelgrass leaves by as much as 2.3 percent." And
21 that's both from the Penhale in 1977 and the
22 Hansen 1995 studies.

23 MR. ELLISON: Okay, let me just identify
24 Duke's errata as the next exhibit in order. Duke
25 Energy corrections to the record handed out.

1 HEARING OFFICER FAY: That will be
2 exhibit 315.

3 MR. ELLISON: And should I assume, Mr.
4 Fay, that you would also like the PowerPoint
5 presentation identified and submitted?

6 HEARING OFFICER FAY: Yes, and if you'll
7 please docket that and serve it on all parties.
8 So Duke's full PowerPoint presentation in the
9 order presented will be exhibit 316.

10 MR. ELLISON: In that case I would move
11 the admission of exhibits 286, 287, 289 -- well,
12 let me approach it this way. Exhibits 286, 287,
13 298 and exhibit 300 are Duke's testimony. They
14 incorporate by reference, and therefore include,
15 exhibits 289, 290, 291, 292, 293, 294, 295, 296,
16 297, 299, 301, 302 and 303.

17 And then lastly just identified a moment
18 ago were the PowerPoint presentation exhibit 316,
19 and the errata exhibit 315.

20 I would move the admission of those
21 identified exhibits.

22 HEARING OFFICER FAY: Is there
23 objection? All right, hearing none, all those
24 exhibits are entered into the record at this
25 point.

1 MR. ELLISON: The panel is available.

2 HEARING OFFICER FAY: Okay. We're going
3 to take a ten-minute break right now, and we'll
4 return to cross-examine Duke's panel.

5 (Brief recess.)

6 HEARING OFFICER FAY: We're back on the
7 record. And James will remind me to give all the
8 blue cards to him so that we're sure to get your
9 names right in the record.

10 Our intent, as I said before, is to take
11 public comment beginning at 5:00. And to not take
12 any evidence after public comment tonight. And we
13 will commence again tomorrow morning at 9:00.

14 So, if anybody has to leave and is not
15 interested in staying for public comment, they do
16 not need to worry that they would miss anything
17 because the evidence will stop at 5:00.

18 All right, now we're going to continue
19 and the Duke panel is available for cross-
20 examination. Ms. Holmes, do you have questions?

21 MS. HOLMES: Yes, I do, thank you.

22 CROSS-EXAMINATION

23 BY MS. HOLMES:

24 Q Good afternoon. I want to start first
25 by going back to the numbers that were presented

1 in the 316(b) study to which, I believe, all
2 parties agreed.

3 That study basically provided estimates
4 of differing levels of proportional mortality for
5 species.

6 I'd like to know whether or not the
7 model that you're using, I believe you call it the
8 HEA model, provides results that differentiate
9 amongst those species?

10 I don't know who the correct person to
11 address this is --

12 MR. JOHNSON: Yeah, I think Dr. Mayer
13 can answer that question best.

14 MS. HOLMES: Thank you.

15 DR. MAYER: The HEA model made use of
16 all the fish and crab larvae that were entrained
17 that were reported in that study. And calculated
18 for the individuals, their approximate weights,
19 and added that -- not approximate, but estimated
20 weights, and added that up for a total estimate of
21 biomass entrained.

22 MS. HOLMES: Actually I'm looking for --
23 I'm trying to ask a question about the output.
24 I'm saying does the model output tell you about
25 the types of credit that are created by species?

1 DR. MAYER: The credit, as estimated
2 from the eelgrass and the other habitats being
3 restored, --

4 MS. HOLMES: Yes.

5 DR. MAYER: -- is output as a biomass
6 estimate produced from those habitats.

7 MS. HOLMES: Is that biomass
8 differentiated amongst the species? In other
9 words, do you know what kind of increase you're
10 expecting to get in goby biomass versus sculpin
11 biomass versus jack smelt biomass?

12 DR. MAYER: Well, I can defer the
13 question to -- but I -- yeah, go ahead, it's
14 better they answered.

15 MS. HOLMES: Okay. It wasn't me,
16 honest.

17 (Laughter.)

18 MR. CAMPBELL: The habitat determines
19 what the species output will look like from the
20 standpoint of the habitat equivalency analysis, it
21 makes a distinction between crab biomass and fish
22 biomass.

23 MS. HOLMES: But not amongst the
24 different types of fish biomass?

25 MR. CAMPBELL: It does not, no.

1 MS. HOLMES: So it's simply, another way
2 of putting it, perhaps, would be to say that if
3 the assumptions that go into the model are
4 correct, what you get out at the other end is the
5 weight of all the fish, not necessarily any
6 specific ratio of different fish species?

7 MR. CAMPBELL: That's correct, but the
8 habitat equivalency is part of the overall HEP --

9 MS. HOLMES: I understand, I just want
10 to focus on the model portion of it first.

11 MR. ELLISON: Let me just ask a
12 clarifying question. Are you just asking about
13 fish?

14 MS. HOLMES: I was just asking about
15 fish in this --

16 MR. ELLISON: As opposed to crabs?

17 MS. HOLMES: I beg your pardon?

18 MR. ELLISON: As opposed to crab,
19 because his answer --

20 MS. HOLMES: Yes.

21 MR. ELLISON: -- differentiated the two.

22 MS. HOLMES: Yes.

23 MR. ELLISON: Okay.

24 MS. HOLMES: I'm asking whether or not
25 the model produces results that let you know what

1 the biomass increases will be by the species of
2 fish that are entrained by the power plant.

3 And I believe his answer was no.

4 MR. CAMPBELL: What I said, but that is
5 determined by the type of habitat that you select
6 to --

7 MS. HOLMES: Right.

8 MR. CAMPBELL: -- to do the restoration.

9 MS. HOLMES: So the model doesn't tell
10 you, for example, whether or not the larvae that
11 are being entrained, the specific larvae that are
12 being entrained by species will be at levels that
13 they might be without the power plant in
14 operation, does it?

15 MR. CAMPBELL: Again, what it does is it
16 determines the amount of biomass that will be
17 created. And it determines it in fish and crab.
18 And you can -- a resource manager can select and
19 determine what species mix that he or she selects,
20 based upon habitat selection.

21 MS. HOLMES: I'm trying to focus on the
22 model output, if you could stick to that.

23 MR. CAMPBELL: But you can't separate
24 out the habitats that are selected from the model.
25 We're specifically selecting habitat that's

1 targeted to benefit the types of species that are
2 being entrained.

3 MS. HOLMES: I understand that in the
4 context of the HEP program. I'm still trying to
5 get an answer about model outputs.

6 MR. CAMPBELL: I think -- I want to make
7 sure we're clear, we have clarity on this. The
8 habitat equivalency analysis, we specifically
9 select that habitat that is going to be -- that
10 will provide the type of biomass that is being
11 entrained.

12 And so we wouldn't -- I mean we could
13 select something unrelated, but we didn't.

14 MS. HOLMES: But I'm asking you whether
15 or not the model results --

16 MR. CAMPBELL: The model, as it was
17 applied, does. The model indiscriminately
18 generically does not.

19 MS. HOLMES: Did you provide species-
20 specific model results in your testimony? Because
21 I didn't see those.

22 MR. CAMPBELL: We did not. But what I
23 want to --

24 MS. HOLMES: Thank you. I'm sorry, go
25 ahead, finish your answer.

1 MR. CAMPBELL: But we selected habitats
2 for restoration that would provide the same type
3 of biomass that was being entrained.

4 MS. HOLMES: I understand, thank you.

5 MR. CAMPBELL: I don't mean to be
6 difficult.

7 MS. HOLMES: I'd like to turn for a
8 moment to exhibit 298 on page 11. Earlier this
9 morning I asked a question of Dr. Haltiner about a
10 citation to his study that Duke had provided in
11 its rebuttal testimony.

12 And I wanted to ask a follow-up question
13 since we don't have Dr. Jocelyn here. And that
14 question is do those studies -- are those studies
15 based on any empirical data of species numbers in
16 Morro Bay?

17 MR. JOHNSON: Can you give us a
18 reference? Are you on page 11?

19 MS. HOLMES: I am on page 11. I'm
20 referring to the second sentence up from the
21 bottom of the paragraph that's second up from the
22 bottom. I guess it's what they call a bottoms-up
23 approach.

24 (Laughter.)

25 MR. JOHNSON: Beginning with: The

1 scientific connection?

2 MS. HOLMES: Yes.

3 MR. JOHNSON: Okay.

4 DR. MAYER: I see the location of the
5 text you're referring to. Can you restate the
6 question just to make sure?

7 MS. HOLMES: My question is whether or
8 not you are testifying that those studies that
9 you've referred to here contain conclusions about
10 the numbers of species in various habitats based
11 on empirical data?

12 DR. MAYER: Okay, and if you will allow
13 me, I could rephrase a bit. The study that was
14 reported by Dr. Haltiner -- he actually showed
15 those slides on the screen this morning in his
16 presentation -- broke down the elevations. I mean
17 he did his calculations in terms of elevation.

18 But on the other axis of his charts he
19 showed that in terms of habitat. So he had marsh,
20 eelgrass, mud flat. So to the degree that we're
21 looking at changes in elevation associated with
22 those habitats, yes, there's information about the
23 species associated with those habitats.

24 MS. HOLMES: But there's no information
25 in that study about species abundance by habitat,

1 is there?

2 DR. MAYER: It's inferred from his
3 analysis which looked at habitat associated with
4 the elevation.

5 MS. HOLMES: It was inferred by him?

6 DR. MAYER: It's inferred when I look at
7 a graph and it says mud flat, eelgrass --

8 MS. HOLMES: So the conclusion about the
9 connection between entrained species and species
10 that will occupy restored habitat by species is
11 your conclusion? Is that a fair statement?

12 DR. MAYER: He did not conclude that in
13 his report, if that's what you're asking. That's
14 true.

15 MS. HOLMES: But you have concluded
16 that?

17 DR. MAYER: Yes.

18 MS. HOLMES: Thank you. Generally
19 speaking, is the projects that have been
20 identified in the habitat equivalency program, or
21 that have been analyzed in the HEA model, are
22 those projects that are designed to create new
23 habitat, or to prevent loss of existing habitat?

24 MR. CAMPBELL: There's a couple things.
25 First of all, I would -- none of the projects that

1 we are proposing are going to create new habitat
2 in the technical sense of the word.

3 What we are looking at is either
4 restoring or preserving existing habitat. When we
5 say restore what we mean is that we would go and
6 look at an area and determine what its original
7 condition was, and return that back to some
8 historical level that was, in fact, the natural
9 state.

10 On the preservation side we're simply
11 looking at stopping sedimentation in order to be
12 able to protect habitat that currently is viable
13 from becoming diminished or inviable.

14 So, would you rephrase the question
15 without the creation word?

16 MS. HOLMES: No, I think that's fine. I
17 think I'll just simply accept that answer and move
18 on in the interests of time.

19 We've had some discussion today about
20 the appropriate use of the HEA model, and perhaps
21 you're the best person to address this question
22 to. I reviewed the summary of HEA examples, I
23 can't remember which appendix it was in. It was
24 in one of the appendix for the HEP testimony,
25 which is exhibit 287.

1 Did you provide any examples of
2 situations in which HEA has been used to seek
3 regulatory approval of activities that are going
4 to cause environmental harm in the future?

5 MR. CAMPBELL: In terms of the specific
6 examples we provided here I don't believe that we
7 did.

8 MS. HOLMES: Thank you.

9 MR. CAMPBELL: Oh, excuse me, I'm sorry.
10 My colleague corrected me. There are numerous
11 examples there relating to Superfund sites. And
12 those deal with situations where you have ongoing
13 continuing contamination resulting in ongoing
14 continuing injury.

15 MS. HOLMES: But that was not my
16 question. My question was has it been used to
17 justify regulatory approval of environmental harm.
18 My understanding is in the Superfund site cases
19 people aren't coming to a regulatory agency and
20 saying can I create this harm. Here's my HEA
21 model and it will take care of the problems that
22 could be created --

23 MR. CAMPBELL: So you're asking the
24 question whether or not it's ever been applied in
25 that context?

1 MS. HOLMES: Yes.

2 MS. KUHN: Let me just add something for
3 that. In seeking regulatory approval to continue
4 to have environmental impacts, I believe that was
5 your question, has HEA ever been used to do that.

6 And, in fact, --

7 MS. HOLMES: No, my question was did you
8 provide an example in your testimony of that.

9 MR. CAMPBELL: No, your last question
10 was did we or were we aware of any.

11 MS. KUHN: Can you rephrase the question
12 because --

13 MS. HOLMES: My question was do any of
14 the examples that are provided in your HEP
15 testimony involve situations in which an entity
16 has sought regulatory approval to create
17 environmental harm.

18 MS. KUHN: Give me one second and let me
19 look at appendix F.

20 MS. HOLMES: Thank you.

21 MS. KUHN: I'd like to draw your
22 attention to appendix F, page 138 where we talk
23 about the State of Louisiana v. Conoco.

24 In that particular instance the facility
25 had an EDC chemical spill release. And in order

1 top have their remedial program approved, and for
2 them to discontinue ongoing excavation of the
3 channel adjacent to their facility, they offset
4 the ongoing future impacts of residual EDC in
5 those sediments with a restoration project.

6 The benefits associated with that
7 restoration project were quantified using HEA, as
8 well were the impacts of the ongoing future
9 implications of having residual EDC in the
10 sediment.

11 So, in fact, HEA was used to do an
12 analysis to give Conoco the approval to
13 discontinue their remedial action -- or they got
14 approval for their remedial action plan using
15 habitat --

16 MS. HOLMES: Did Conoco go and ask for
17 regulatory approval using the HEA to create the
18 injuries associated with the release in the first
19 place?

20 MS. KUHN: Well, the injury that would
21 be created would be the allowance of that material
22 to -- to allow that material to remain in the
23 sediment when it wasn't there originally.

24 And so when you get, you know, approval
25 for your -- well, I'm sorry, that's the answer.

1 When you get approval for your remedial action,
2 and the regulatory agency allows you to continue
3 to allow that material to stay in an environment
4 where it was not originally, and the justification
5 for allowing you to do that is the fact you
6 provided mitigation in the form of restoration.
7 And you quantified the benefits; and the agency
8 says the benefits you're creating by the
9 restoration project are greater than the impacts
10 that are created by allowing you in the future to
11 allow that material to remain there.

12 MS. HOLMES: I'm familiar with the
13 concept, but I still am trying to ask the question
14 as to whether Conoco used an HEA approach to ask
15 for regulatory approval to release the substance
16 in the first place.

17 MR. CAMPBELL: Given that narrow
18 definition, just applying specifically, then the
19 answer would be that in terms of specifically
20 asking in advance, that would be the case.

21 But, in fact, has HEA been used in order
22 to be able to offset continuing injuries, the
23 regulatory agency had the ability to abate, the
24 fact is that it has been used in that context.
25 And also under the Texas Risk Reduction Rules,

1 it's specifically allowed to be used specifically
2 in that context now.

3 MS. HOLMES: I wanted to ask a couple
4 of, I hope they're brief questions about the
5 productivity assumptions that were used.

6 Again, I'm in exhibit 287, and at this
7 point I'm in I believe it's appendix G at page
8 151. I want to know whether or not the primary
9 rates for production rates for eelgrass habitat
10 that you used come from the table 1 at the bottom
11 of page 151. Or from another source?

12 MR. CAMPBELL: They come from some of
13 the data that is found on table 2. Some of the
14 data was excluded --

15 MS. HOLMES: I'm sorry, I don't see a
16 table 2 there.

17 MR. CAMPBELL: I apologize, table 1;
18 151, I apologize. Table 1 and table 2 are tied
19 together. The answer is yes, we did use the data
20 in table 1, combined with the data in table 2.

21 MS. HOLMES: So you used data to
22 establish this productivity rate that comes from,
23 in some instances it simply says U.S. Coastal,
24 Pacific Coast; those sound like very broad
25 references.

1 MR. CAMPBELL: I'm sorry, to what
2 specifically are you referring?

3 MS. HOLMES: I'm wondering, I'm trying
4 to determine the weight to which you gave
5 productivity values that were derived from
6 environments that were similar to this, versus
7 environments that may be dissimilar. And I'm
8 asking you, or I was trying to ask you, I was
9 trying to understand how you factored in
10 productivity factors from citations to U.S.
11 Coastal and Pacific Coast, which seem quite -- or
12 Atlantic and Gulf Coast, which seem quite broad.

13 MR. CAMPBELL: Let me kind of run
14 through that for you. What we did is we created a
15 category that was subaquatic vegetation which
16 included both eelgrass and saltwater marsh.

17 Table 1 was used as a reference. It was
18 combined with portions of table 2. We included
19 table 2 simply so that the people were aware of
20 the full suite of information that was available.

21 We selected particularly the California
22 references. We did not use, I think, the one that
23 you were specifically referring to as U.S.
24 Coastal. We used the California references.

25 We did exclude the Mugu Lagoon because

1 Dr. Friant felt that some of the methods that were
2 used in collection in that particular study
3 unnecessarily and unreasonably reduced the
4 collection, the amounts, the collection
5 methodologies that were employed.

6 So, what we did is we used an aggregate
7 of table 1 and table 2, but we did selectively
8 choose the California sites or the west coast
9 sites. And did not include the U.S. Coastal site;
10 and we didn't use the Atlantic and Gulf Coast, for
11 example. Does that help?

12 MS. HOLMES: Yes, that does. Earlier
13 this morning there was a discussion by Dr.
14 Cailliet testifying on behalf of the Regional
15 Board with respect to the value of mud flat
16 habitats to gobies. Did you hear that discussion?

17 MR. CAMPBELL: I did.

18 MS. HOLMES: I'd like to ask, I guess it
19 would be Dr. Mayer or Dr. Friant, the biologists,
20 whether or not you agreed with his
21 characterization of the value of mud flat habitat
22 for gobies.

23 MR. ELLISON: Could you be just a little
24 more specific, Caryn? I don't remember exactly
25 what the characterization was, so maybe --

1 MS. HOLMES: That it was very valuable
2 habitat.

3 MR. ELLISON: Okay, so that's what
4 you're looking for --

5 MS. HOLMES: That's my layman's
6 understanding of it.

7 MR. ELLISON: So you're just asking, do
8 they agree it's very valuable habitat?

9 MS. HOLMES: Yes.

10 DR. MAYER: For the gobies that he was
11 talking about. I don't disagree with his
12 statements that he was expressing this morning
13 with respect to the -- mud flat to provide gobies
14 habitats, particularly the ones that he was
15 speaking of.

16 MS. HOLMES: So would the removal of mud
17 flat to create a different type of habitat that's
18 been proposed in one of your programs, would that
19 cause impacts to the gobies that may be there now?

20 DR. MAYER: As I said, I was expressing
21 this directly to the remarks he made. He talked
22 about gobies, there's a number of species out
23 there. And he even spoke about the different
24 species of gobies.

25 But in general the gobies that we're

1 talking about in Morro Bay use both eelgrass and
2 mud flat habitat, if that's your comparison that
3 you're trying to make.

4 MS. HOLMES: My question is whether or
5 not, if you're trying to preserve larval
6 production of gobies, whether or not a proposal to
7 remove mud flats is inconsistent with that
8 objective.

9 DR. MAYER: I guess I need to understand
10 what you mean by remove. Without replacement of
11 anything, or concrete?

12 MS. HOLMES: No, with eelgrass.

13 DR. MAYER: They both are very valuable
14 habitats to gobies.

15 MS. HOLMES: What about the other
16 species that are entrained by the power plant?
17 Again, Dr. Cailliet testified this morning that
18 other habitats could be selected that would
19 benefit some of the other entrained species.

20 Do you disagree or agree with that
21 conclusion?

22 DR. MAYER: As I remember his testimony
23 he talked about several species that were
24 entrained and the different kinds of habitats that
25 they utilize in Morro Bay.

1 But I think the point that we're trying
2 to get across here is that in preserving Morro Bay
3 it doesn't differentiate between the types of
4 habitats that are currently in Morro Bay, the ones
5 that are preserved.

6 So species that are in those habitats
7 today that are producing larvae that are entrained
8 would be there by the preservation of those
9 habitats in the future.

10 So we're not replacing habitats one with
11 the other.

12 MS. HOLMES: I'm confused. I thought
13 the purpose of your proposal was to try to
14 increase larval production of the species that are
15 entrained by the power plant. Am I mistaken?

16 DR. MAYER: The proposal has two parts
17 to it. It has preservation and restoration. And
18 actually the preservation side of it is the
19 greater; most of the project is projects are
20 devoted to preservation, which does not
21 discriminate between any particular habitat.

22 MS. HOLMES: So the restoration -- did
23 you conclude that the restoration projects that
24 you've identified would benefit entrained species
25 other than gobies?

1 DR. MAYER: The restoration project key
2 example is the hoary cress project where we're
3 converting what is currently terrestrial or upland
4 habitat back to marine habitat.

5 Our assumptions in doing so is that in
6 place and surrounded by salicornia marsh on both
7 sides it would return to that kind of habitat and
8 provide services to the species that are occupying
9 that habitat at the neighboring --

10 MS. HOLMES: And does that include all
11 the species that are entrained?

12 DR. MAYER: That's just one area of
13 Morro Bay.

14 MS. HOLMES: Does that include all the
15 species that are entrained?

16 DR. MAYER: No, it doesn't.

17 MS. HOLMES: Thank you.

18 MR. ELLISON: Ms. Holmes, just so we
19 have a clear record, I want to make sure that
20 we're using the same terms the same ways.

21 When you say a restoration project or
22 restoration projects, from the Duke perspective
23 the HEP includes a set of six different proposed
24 representative projects, most of which are not
25 restoration projects.

1 My sense, from reading staff's
2 testimony, though, is that the staff uses the word
3 restoration projects perhaps, correct me if I'm
4 wrong, to mean all of the HEP projects.

5 So what I'm suggesting here is when you
6 say are the restoration projects having a certain
7 effect, could you clarify do you mean all the six
8 representative projects together, or are you
9 referring specifically to what Duke would refer to
10 as just the restoration portion?

11 MS. HOLMES: For purposes of this cross-
12 examination I'm using Duke's definition.

13 MR. ELLISON: Okay.

14 MS. HOLMES: There's some discussion
15 earlier this afternoon about the assumption that
16 benefits will continue for 100 years as a result
17 of the projects. I believe that was Ms. Kuhn that
18 was talking about that issue.

19 Does the model take into account when it
20 does those kinds of projects the fact that
21 estuaries change? Or does it assume a static set
22 of conditions?

23 MS. KUHN: If you'll give me a second,
24 let me take a look at that appendix, okay, so I
25 can refresh my memory. Looking at appendix E.

1 I just want to clarify that we only made
2 the assumption that two projects had a lifespan of
3 100 years.

4 MS. HOLMES: That would be the hoary
5 cress project and the restoration of mud flat and
6 eelgrass?

7 MS. KUHN: That's correct. I apologize,
8 would you ask me the question again?

9 MS. HOLMES: I said that would include
10 the hoary cress project and the restoration of mud
11 flat and eelgrass?

12 MS. KUHN: That's correct, those two.

13 MS. HOLMES: Now you want me to go back
14 to my first question?

15 MS. KUHN: Yes, ma'am.

16 MS. HOLMES: All right. In the model in
17 calculating the amount of biomass that's created
18 over whether it's 50 years for the other projects,
19 or 100 years, does the model take into account the
20 fact that estuaries change? Or is there a static
21 set of conditions assumed?

22 MS. KUHN: The way that we have modeled
23 the benefits, it models them in a consistent way,
24 delivers them in a consistent way over the
25 lifespan of the project.

1 You could adjust the model, I guess, if
2 you wanted to. But we've modeled it so that it
3 provides consistent services once it reaches full
4 maturity over the lifespan.

5 However, the model, like I indicated
6 earlier, lacks a lot of sensitivity to benefits
7 accrued after 50 years.

8 MS. HOLMES: Let's talk about some of
9 the benefits that might occur between 25 and 50
10 years. And I'd like to ask the biologists whether
11 or not they believe that conditions in the estuary
12 are likely to change. Are they likely to be
13 different 25 years from now than they are? I
14 don't think I said that correctly. Are they
15 likely to be different 25 years than they are now?
16 And are they likely to be different 50 years than
17 they are now?

18 DR. MAYER: That's really asking for a
19 large degree of speculation. I don't have any
20 reason to believe that they'd be any different or
21 that they wouldn't be different, you know, based
22 on today, what we know about the Bay.

23 MS. HOLMES: Have they changed
24 considerably over the last 25 years based on your
25 professional judgment?

1 DR. MAYER: We really have evidence as
2 to their time scale or change. We have
3 information provided by Philip and Williams'
4 analysis of the sediments, characteristics of the
5 Bay that have changed over that period of time;
6 the biological record; it isn't as complete.

7 MS. HOLMES: Are there factors that
8 could cause degradation over 25 or 50 years
9 affecting estuaries in general and this estuary in
10 particular?

11 DR. MAYER: What range of factors are we
12 talking about?

13 MS. HOLMES: Anything that --

14 DR. MAYER: -- you have in mind?

15 MS. HOLMES: I'm talking about any kinds
16 of factors that could influence or affect the
17 productivity of the habitat that you're proposing
18 to restore and/or prevent from being further
19 degraded.

20 MR. ELLISON: Clarification. Are you
21 asking the question assuming Duke's HEP program
22 goes forward, or not, since there's certainly been
23 testimony --

24 MS. HOLMES: I'm asking it assuming the
25 program goes forward.

1 DR. MAYER: Well, I think we've
2 identified both in our presentation as a number of
3 other reports on the issue of some of the concerns
4 and factors surrounding Morro Bay's habitat and
5 its condition. And I wouldn't expect -- I don't
6 have any reason to believe those aren't accurate
7 inventories of possible factors that could affect
8 Morro Bay today or in the future.

9 MS. HOLMES: Could those factors cause
10 degradation of the habitat that Duke is proposing
11 to restore?

12 DR. MAYER: Again, I really would want
13 to be more specific about asking that. In some
14 cases that could be; and in other cases there may
15 not be any connection at all.

16 MS. HOLMES: Did Duke run sensitivities
17 of the HEA model and determined how the results
18 would change if, for example, you assumed that
19 productivity, that the project would continue to
20 produce benefits for only, say, 20 years instead
21 of 100 years or 50 years?

22 MR. ELLISON: I'm sorry, are you asking
23 about a sensitivity on that specific variable? Or
24 just asking any sensitivity?

25 MS. HOLMES: That was an example.

1 MR. ELLISON: Okay, so you're just
2 asking have they run any sensitivity runs, period?

3 MS. HOLMES: Yes.

4 MR. CAMPBELL: We did not run any
5 sensitivity models until it was suggested by Dr.
6 Ambrose that that might be a possibility. I
7 prefer not to do that. I prefer to have the
8 inputs put in and let the inputs dictate what your
9 results are.

10 We have done limited work since that
11 time. For example, we did a rough calculation.
12 And the benefits that come after year 50, you get
13 80 percent of your benefits in the first 50 years,
14 and about 20 percent of you benefits from 50 to
15 100 years.

16 MS. HOLMES: I'm sorry, could you state
17 the last -- I lost the train of connections there.
18 If you could restate the last 30 seconds of what
19 you were saying I would really appreciate that.

20 MR. CAMPBELL: We did just a very quick
21 sensitivity, and we determined that about 80
22 percent of the benefits accrue in your first 50
23 years, ad only 20 percent of it accrue thereafter.

24 So on those two projects that had the
25 100 year lifespan, just on those two limited

1 projects you really got 80 percent of your benefit
2 in the first 50 years.

3 MS. HOLMES: I'd like to go back for a
4 second to just one more question for Dr. Mayer on
5 the other confounding factors. My understanding
6 is that Morro Bay has been designated as an
7 impaired water body for more than just sediment.
8 Is that your understanding?

9 DR. MAYER: Are you referring to a
10 particular designation by the Regional Board?

11 MS. HOLMES: Well, again I'm basing this
12 on conversations we had at a workshop. My
13 recollection is that there were discussions about
14 the fact that Morro Bay had been designated as an
15 impaired water body for constituents other than
16 sediment. And I'm just asking you if that's your
17 understanding.

18 DR. MAYER: I don't, but Mr. Thomas is
19 here in the audience. We could certainly ask him
20 if he has more information on that, but --

21 MS. HOLMES: No, that's fine, we'll just
22 move on.

23 DR. MAYER: Okay.

24 MS. HOLMES: I wanted to ask a little
25 bit, try to get a little bit of information about

1 the funding. My understanding is that Duke
2 proposes to provide the \$9.7 million in three
3 phrases; 25 percent when the concrete is poured;
4 50 percent when commercial operation starts; and
5 25 percent I think it's two years hence.

6 Do you have an estimate of how long it
7 will be until the various projects in fact are
8 implemented? Perhaps another way to ask that is
9 could you tie together those funding dates with
10 the dates that you have, or the project
11 assumptions that you have in appendix E?

12 MS. KUHN: I can speak to the deferred
13 implementation of the projects that we did in
14 appendix E, Kevin, if you'll handle the timing
15 issue.

16 If I can refer you to appendix E once
17 again at 132, you'll see in each of these projects
18 the input variables; the second category of input
19 variable is the time to implementation.

20 For all but one of the projects we
21 deferred implementation for two years. The
22 implications of that to our analysis of the
23 benefits is that that's a very conservative
24 estimate. It makes us have to provide more
25 restoration than what we would have had we not

1 done that.

2 But we felt like that was a realistic
3 scenario given the planning that would have to
4 take place, the design and the coordination with
5 other ongoing projects.

6 MS. HOLMES: I guess the question I have
7 to ask is if the concrete is poured at the time of
8 permit approval, and then the project is
9 constructed, how many years is there between the
10 time that full funding is provided and the
11 projects are assumed to be implemented?

12 I just couldn't make the connections
13 between your discussion about the funding schedule
14 and the assumptions about the times that the
15 programs were implemented.

16 MR. JOHNSON: The funding schedule you
17 outlined is basically correct. By the time
18 impacts begin, commercial operation, 75 percent or
19 about \$7 million of the 9.7 would have been paid.

20 The implementation of the projects is
21 dependent on how the NGO sequences those and how
22 they perceive which project should go first.

23 For purposes of calculating the HEA
24 credit, I believe we assumed that the credit, as a
25 result of the habitat enhancement proposals, would

1 vest two years after commercial operation.

2 And by that time we would have paid the
3 last 25 percent of the 9.7 or the remaining 2
4 million.

5 MS. HOLMES: I missed the verb in the
6 previous sentence.

7 MR. JOHNSON: Which --

8 (Laughter.)

9 MR. JOHNSON: Vest. Vest.

10 MS. HOLMES: What will vest within two
11 years? I'm sorry.

12 MR. JOHNSON: The projects, the credit
13 would vest for the habitat enhancement projects
14 would occur two years after commercial operation
15 for the purposes of calculating the credit versus
16 the debit under the HEA analysis.

17 MS. HOLMES: When you say vest, do you
18 mean that the projects will reach full
19 productivity two years after?

20 MR. JOHNSON: No. Go ahead.

21 MR. CAMPBELL: What he's suggesting is
22 we've allowed for two years of permitting on all
23 the projects with the exception of the eelgrass,
24 and we provided for five in that particular
25 instance because that's a particularly complicated

1 permitting situation. And it will probably need
2 to be done in tandem with the Army Corps of
3 Engineers and the work that they're doing. So we
4 said that.

5 So, in terms of the model we're saying
6 that two years after the plant begins we will
7 actually begin implementation of the projects, all
8 right. And --

9 MS. HOLMES: So there's a two-year gap,
10 in other words, between commercial operation
11 begins and when the projects begin to be
12 implemented?

13 MR. ELLISON: Well, please, let him
14 finish his answer.

15 MR. CAMPBELL: Let me finish it because
16 it's important. That's what the model said. In
17 reality you're getting your money for permitting,
18 25 percent is actually coming in advance of
19 operation. And so the permitting should be
20 completed prior to operation when the \$5 million
21 is paid as the plant begins to operate, they
22 should be ready to implement all of the
23 restoration and preservation projects with the
24 exception of the eelgrass restoration.

25 And so we, again, conservatively

1 estimated the impacts to be greater than they
2 actually would be, and in the practical
3 application of how the money was spent.

4 MS. HOLMES: Is it your understanding
5 that all of the planning and permitting activities
6 that need to occur can be funded with 25 percent
7 of the funds?

8 MR. CAMPBELL: Yeah. With the
9 exception, again, as we pointed out, of the
10 eelgrass, but, yes. Two of the projects don't
11 require any permitting. The hoary cress project
12 will require two years in order to be able to be
13 permitted. With good planning it should be able
14 to be permitted. And then the 5 million arrives
15 in time to do adaptive management and begin the
16 process. To actually implement and then pursue
17 adaptive management.

18 MS. HOLMES: So your anticipate is 25
19 percent covers all of the planning and permitting
20 costs for the projects. And the construction
21 costs come out of the 50 percent.

22 MR. CAMPBELL: We're just talking about
23 the initial planning and initial permitting;
24 doesn't include monitoring; doesn't include
25 adaptive management; doesn't include all the other

1 expenses. Yeah, we think we can do that with --

2 MS. HOLMES: And where do those other
3 funds come from?

4 MR. CAMPBELL: Those funds come when the
5 \$5 million vest when the plant begins operation.
6 And at --

7 MS. HOLMES: I'm sorry, where's the --
8 I'm still on percentages. We talked about 25
9 percent being --

10 MR. CAMPBELL: The 25 percent --

11 MS. HOLMES: -- for planning and
12 implementation --

13 MR. CAMPBELL: For the initial planning
14 and permitting.

15 MS. HOLMES: Right.

16 MR. CAMPBELL: And then at the point in
17 time when the plant actually begins operation, 50
18 percent comes in at that particular point in time.

19 MS. HOLMES: And that would be the
20 construction costs, because -- well, actually in
21 some instances --

22 MR. CAMPBELL: That would be the
23 construction costs.

24 MS. HOLMES: It wasn't exactly a
25 doubling, it wasn't exactly 50 percent of the

1 total, but roughly, based on the charts that you
2 put up earlier this afternoon?

3 MR. CAMPBELL: The charts we put up this
4 afternoon, you're comparing apples and oranges.
5 That was how much needs to be -- that included the
6 whole series of categories within the planning
7 part, some of which would be costs that would be
8 ongoing as you're pursuing the project.

9 MS. HOLMES: Where do the monitoring and
10 contingency costs get paid? They get paid out of
11 the 25 percent that happens two years after
12 commercial operation?

13 MR. CAMPBELL: That would be one option.
14 Again, it would be up to the NGO. But as we said
15 in a previous slide, of the representative project
16 number of 9.7, 2.43 million, or 25 percent of that
17 would be paid on pouring foundations.

18 \$4.85, almost \$5 million would be paid
19 upon commercial operation. The remaining 2.4
20 million two years after commercial operation.

21 Within those three tranches, the
22 monitoring, management, engineering, permitting
23 and construction activities would be funded,
24 depending on the sequencing the NGO finally adopts
25 for the actual projects.

1 MS. HOLMES: On page 24 of exhibit 298,
2 there's a discussion of the baseline monitoring
3 program. Are people there?

4 MR. JOHNSON: Say again, please?

5 MS. HOLMES: Page 24 of exhibit 298.
6 And the first sentence of the second paragraph
7 states that the HEP includes a baseline monitoring
8 program primarily to help interpret the HEP
9 project related changes in the Morro Bay
10 ecosystem."

11 (Pause.)

12 MR. JOHNSON: Okay, could you say it
13 again?

14 MS. HOLMES: I just read the first
15 sentence of the second paragraph.

16 Does your baseline monitoring proposal
17 include limitations on monitoring for fish and
18 invertebrates?

19 DR. MAYER: Well, the baseline
20 monitoring proposal is attached as appendix B to
21 the HEP program.

22 MS. HOLMES: Does it include limitations
23 on monitoring for fish and invertebrates?

24 DR. MAYER: Well, I don't understand
25 what you mean by limitations.

1 MS. HOLMES: Is there a dollar
2 limitation on the amount of money that can be
3 spent on monitoring fish and invertebrates for the
4 baseline monitoring program?

5 DR. MAYER: Not that I'm aware of.

6 Oh, I know what you're -- there was a
7 footnote someplace that talked about -- I'll let
8 you find it.

9 (Laughter.)

10 (Off-the-record comments.)

11 DR. MAYER: It's on 116.

12 MS. HOLMES: So there is a limitation?

13 DR. MAYER: No, I wouldn't characterize
14 limitation. There was a proposal to look at at
15 one time fish inventory that had a dollar value of
16 about \$40,000 that was just simply spread over the
17 five-year period of monitoring.

18 That would be, all of these, the waiting
19 for the actual allocation of funds for monitoring
20 would be clearly in the hands of the NGO managing
21 both the projects and the monitoring --

22 MS. HOLMES: So should footnote 2 be
23 stricken?

24 DR. MAYER: I think the footnote is
25 expressing a way to take an estimated amount of

1 funding for fish inventory and devoting it over a
2 five-year period of time. If that's an
3 inappropriate allocation I'll let somebody else
4 make that judgment. That's what we did in
5 creating that number, though, that was put there.
6 I think it's still a fair estimate.

7 MS. HOLMES: But Duke's testimony is
8 that the NGO could choose to spend more money on
9 fish and invertebrate monitoring?

10 MR. JOHNSON: Sure, within the balance
11 of the program they could use the dollars as they
12 saw fit.

13 MS. HOLMES: There's a discussion -- let
14 me find it -- on page 41 of exhibit 287, which is
15 the HEP, about measurement of program success.
16 And there's a distinction that Duke draws between
17 I guess it's called project level success and
18 global success. Are you familiar with that
19 concept?

20 MR. JOHNSON: Well, we've got the
21 reference identified.

22 MS. HOLMES: If the two bulleted items
23 that are at the top of page 42 don't occur, does
24 that mean that the project doesn't have global
25 success?

1 MR. JOHNSON: Certainly our proposal is
2 intended to be successfully implemented by the
3 NGO. And it's also made on the basis that there
4 are consistencies with programs advanced by other
5 independent agencies. Those are certainly goals.

6 MS. HOLMES: Well, back on page 41 you
7 state that the global performance measures should
8 be used to evaluate the program in its entirety.
9 And my question is if those two global performance
10 measures that you've provided on the top of page
11 42 don't occur, does that mean that the --

12 MR. JOHNSON: Don't occur at all, or
13 have limited success, or --

14 MS. HOLMES: Why don't you answer each
15 of those. Why don't you answer what happens if
16 they don't succeed at all and discuss what happens
17 with limited success?

18 MR. JOHNSON: Well, neither one of them
19 would succeed if there was not a HEP proposal and
20 if there was --

21 MS. HOLMES: I'm sorry?

22 MR. JOHNSON: Neither one of them would
23 succeed if there wasn't a HEP proposal, so that's
24 implicit in our response.

25 I think the real answer is yeah, we

1 would see the implementing both of those as
2 critical to global success.

3 MS. HOLMES: So what happens -- does
4 that mean, for example, there is a successful
5 implementation of say three or four projects, and
6 there's no leveraging? Does that mean that the
7 program has failed?

8 MR. JOHNSON: Three or four projects or
9 six. We've provided sufficient funds to complete
10 the projects identified.

11 MS. HOLMES: What criteria should a
12 regulatory agency such as the Energy Commission
13 use in determining whether or not the global
14 success has been met or not?

15 MR. JOHNSON: I don't know what criteria
16 the Energy Commission would use.

17 MS. HOLMES: Okay, thank you.

18 I believe those are all my questions.

19 HEARING OFFICER FAY: Okay, just before
20 we leave this -- I just don't want to leave that
21 hanging. Do any of the biologists have any follow
22 up to Mr. Johnson's answer?

23 MS. KUHN: Could I make one comment to
24 clarify the record? When counsel asked us whether
25 HEA had ever been used to authorize the future

1 impacts, I'd also, while not included in appendix
2 F, I'd like to draw your attention to the example
3 if you go through the NEPA process and you're
4 conducting an EIS. And in order to get federal
5 authorization of a project it is and has been done
6 where HEA has been used to measure a mitigation
7 project that would be offered at the environmental
8 assessment level in order to achieve a finding of
9 no significant impact in order to authorize future
10 impacts for a project.

11 So it has been used to achieve
12 regulatory authorization of future impacts.

13 HEARING OFFICER FAY: Okay. Thank you.
14 Anything further from the biologists in response
15 to that last question of Mr. Johnson?

16 Do you have the question in mind, Dr.
17 Mayer? Is that just too broad?

18 DR. MAYER: It's a very broad question.
19 I don't think, one, I'd presume to suggest to the
20 Energy Commission how to set up performance
21 criteria at this time.

22 But I would say that looking at those
23 two bullet points, and as Mr. Johnson's already
24 pointed out, without a HEP there's really not much
25 to talk about in either one of those points for

1 global performance.

2 But on the second one I think it's an
3 expression as much as anything else, that if there
4 are other ongoing programs within the estuary,
5 that it's really an argument that there's
6 coordination between the different efforts among
7 the people undertaking these programs so that
8 they're not undoing one's efforts by the expense
9 of the other's activities that aren't coordinated.

10 And suggesting, in fact, that with good
11 coordination you could probably achieve more than
12 we'd expected from this program.

13 HEARING OFFICER FAY: Okay, thank you.
14 Does the City have any cross of the panel? All
15 right, then --

16 MR. ELLISON: Actually, Mr. Fay, just
17 before we go on let me just say one thing, which
18 is I thought some of the questions were ambiguous
19 and didn't want to, at the same time, appear
20 overly legalistic, but on this last one I need to
21 say that the question is ambiguous as to whether
22 you're speaking of the criteria for the Energy
23 Commission's action of approving this project at
24 this time.

25 And we have been specific in our

1 presentation about that, and what the law requires
2 with respect to that.

3 Versus the question of monitoring
4 compliance with whatever conditions the Commission
5 attaches. That's a very different kind of
6 question.

7 HEARING OFFICER FAY: Okay. CAPE.

8 CROSS-EXAMINATION

9 BY MR. NAFICY:

10 Q Okay, good afternoon, everyone. One of
11 the sources of confusion, or one of my confusions
12 which I hope you guys, someone on the panel can
13 clarify, is whether or not it's Duke's position
14 that habitat alone is a limiting factor on larvae
15 productivity in the estuary?

16 MR. ELLISON: Do you mean is it the only
17 limiting factor?

18 MR. NAFICY: That's the question.

19 DR. MAYER: No.

20 MR. NAFICY: What other sources of --
21 what other limitations are there?

22 DR. MAYER: There are many factors that
23 go into the Bay that determine its biological
24 production.

25 MR. NAFICY: Well, could you elaborate,

1 please?

2 DR. MAYER: Well, I think we -- it's
3 salinity, temperature -- I'm just listing a very
4 few that have already been expressed. We've
5 recently looked at the NEP's comprehensive
6 management plan for the estuary, lists a number of
7 these factors that go into determining the health
8 and the production of the Bay.

9 MR. NAFICY: When you say recently, do
10 you mean since the hearings were concluded on
11 marine impacts?

12 DR. MAYER: No, I meant to include the
13 reference during those hearings.

14 MR. NAFICY: Okay. Do you know if such
15 factors as pollution, metals, heavy metals and
16 nitrates are also factors limiting productivity?

17 DR. MAYER: I don't know that.

18 MR. NAFICY: Okay. I'm going to read
19 from Duke's rebuttal to CAPE on page 12, bottom
20 paragraph where it says: The scientific in the
21 record support the position that the populations
22 of fish and invertebrate species entrained by the
23 MBPP are not limited by the number of larvae but
24 by the progressive loss or degradation of habitat
25 due to a natural sedimentation rate, polluted

1 stormwater runoff and other ecological stressors
2 facing the Bay."

3 And then it says, "see testimony of Dr.
4 James Cowan and Dr. Mayer, June 4th through 6,
5 2002."

6 Do you remember testifying to what's
7 alleged in this paragraph?

8 DR. MAYER: I would really want to look
9 back at the record on that to be able to answer
10 your question accurately.

11 MR. NAFICY: So this portion of the
12 rebuttal wasn't prepared by you?

13 DR. MAYER: It was. Let me be specific,
14 though, rephrase the question that in general
15 these are factors that we understand from
16 population biology, which was a part of the
17 testimony during those hearings.

18 MR. NAFICY: So you do recall testifying
19 to these?

20 DR. MAYER: I'm saying in general --

21 MR. NAFICY: That wasn't my question,
22 though. I understand your general sense, but my
23 question was specifically -- and I tell you what
24 I'm doing. I seem to recall you testifying the
25 opposite during the hearings. And I want to know

1 whether you now recall what your testimony was.

2 And if you don't, you can just say you
3 don't remember.

4 MR. ELLISON: I'm going to object to
5 this. The testimony was recorded. It speaks for
6 itself. If you want to go back and show that
7 there's some inconsistency between the testimony,
8 you're welcome to do that in the brief. But
9 whether Dr. Mayer recalls, as he sits here right
10 now, exactly what was said is not the best measure
11 of what was said. The best measure of what was
12 said --

13 MR. NAFICY: I -- I --

14 HEARING OFFICER FAY: That's sustained.
15 Let's just go to the information rather than --

16 MR. NAFICY: But, with all due respect I
17 think I'm entitled to, for example, ask questions
18 that show whether, you know, his recollection of
19 various facts, or whether things that were
20 included in here were actually -- he remembers
21 testifying to them.

22 So I mean --

23 HEARING OFFICER FAY: I'd like --

24 MR. NAFICY: -- now, but, you know, I
25 don't think that --

1 HEARING OFFICER FAY: I'd like to focus
2 on --

3 (Parties speaking simultaneously.)

4 HEARING OFFICER FAY: Yeah, let's focus
5 on the HEP today. If you want to argue in your
6 briefs that you can document some inconsistency,
7 that's fine.

8 But today let's focus on the HEP.

9 MR. NAFICY: Well, this was in the
10 rebuttal on the HEP issue. But, I'll move on.

11 HEARING OFFICER FAY: Okay.

12 MR. NAFICY: There's a statement on page
13 11 of Duke's rebuttal to staff, page 11, bottom of
14 the page, it says: Furthermore, the biomass
15 currently being entrained by the Morro Bay Power
16 Plant (predominately gobies) is characteristic of
17 a marine ecosystem that is burdened with
18 sediment."

19 Now, I'm actually interested in knowing
20 where this statement comes from, whether this is
21 consistent with Duke's own studies, or there's
22 another source for the statement.

23 Final paragraph.

24 MR. JOHNSON: What page?

25 MR. NAFICY: Eleven.

1 MR. ELLISON: You've really asked a
2 compound question. Do I understand that your
3 question is what's the source of the statement,
4 basically that's what you're looking for?

5 MR. NAFICY: Yes, correct.

6 MR. CAMPBELL: This really gets to the
7 issue of what a resource manager might choose to
8 do with the resource. Right now we have a
9 tremendous amount of mud flat that is currently
10 part of this system that is a result of the fact
11 that there's been sedimentation that has occurred.

12 We saw the Philip Williams report that
13 was done, that documented where we were in the
14 late 1800s and where we are today.

15 Obviously there's a significant increase
16 in the total amount of mud and sediment in that
17 habitat, and in the Bay. And the fact that you
18 have a significant amount of goby larvae being
19 entrained would be reflective of the fact that you
20 have that predominately mud flat related habitat.

21 MR. NAFICY: With all due respect, that
22 doesn't answer my question. Let me ask another
23 question.

24 How is the biomass from the marine
25 ecosystem that is burdened with sediment different

1 from the biomass from an ecosystem that is not
2 burdened with sediment? Can you describe the
3 difference, please?

4 MR. CAMPBELL: It's a product of the
5 habitat types that are present in that ecological
6 system.

7 MR. NAFICY: Again, you're referring to
8 the habitat type and not the type of biomass.
9 This segment makes a claim about the type of
10 biomass and its relation to the type of habitat.

11 MR. CAMPBELL: Well, what we're saying
12 is that if you change the habitat you change the
13 biomass. If you change the habitat you change the
14 type of biomass. You put in a different mix of
15 habitats and you'll produce a slightly different
16 mix of biomass.

17 And what's happened is this is a system
18 that is prematurely aging as a result of more
19 sediment being put into it than is natural.

20 MR. NAFICY: There's also a statement on
21 page 3 of Duke's testimony about, you know, it
22 again talks about -- it's the second paragraph, it
23 talks about fundamental stresses of Morro Bay.
24 And then there's a claim here that --

25 MR. ELLISON: I'm sorry, which Duke's

1 testimony?

2 HEARING OFFICER FAY: Is this exhibit
3 286, the initial testimony?

4 MR. NAFICY: This is Duke's original
5 testimony.

6 HEARING OFFICER FAY: Okay. Exhibit
7 286.

8 MR. NAFICY: Correct. Page 3. It's
9 along the lines of the section I read before about
10 identifying stressors. It says, "amount of
11 stressors in Morro Bay estuarine environment are
12 sedimentation, material concentrations,
13 nutriconcentrations, fresh water flow reductions,
14 heavy metals, toxics, habitat loss and steelhead."

15 Now, as far as stressors goes, it
16 doesn't list things like degree of salinity or
17 heat. And, again, if someone could explain to me
18 what the source of this statement is, that these
19 are the fundamental stressors?

20 MR. ELLISON: The source of the
21 statement is stated in the testimony. It says,
22 it's described at length in the testimony and
23 briefs. That's the source.

24 Now, if you want to go back beyond that
25 to where that came from, we can go back to that.

1 MR. NAFICY: Okay, so no one just
2 recalls off the top of their head right now?

3 MR. CAMPBELL: Actually, one of the
4 sources is the TMDL.

5 MR. NAFICY: Okay. I want to go to
6 something that was discussed between Ms. Holmes
7 and various members of the panel regarding the
8 assumptions that go into the credit side of the
9 HEA and specifically with the eelgrass restoration
10 project.

11 First of all, can someone tell me what
12 are you assuming is the total acreage of eelgrass
13 in the Bay right now?

14 MR. CAMPBELL: It wasn't relevant to our
15 analysis.

16 MR. NAFICY: So your position about
17 fundamentally how valuable and productive eelgrass
18 habitat is, is fundamentally a separate question
19 separate from how much actual eelgrass habitat is
20 currently in existence?

21 MR. CAMPBELL: What we have been told by
22 everyone who is looking at the Bay, managing it,
23 from the NEP, to the National Marine Fisheries
24 Service, to the Corps of Engineers is that there
25 is a significant -- that eelgrass provides

1 significant benefits to this system.

2 MR. NAFICY: Would it benefit the system
3 if the entire estuary was turned into eelgrass?
4 Would that be a good system, a healthy ecosystem?

5 MR. ELLISON: Objection. First of all,
6 it's a hypothetical; it bears no relationship to
7 any facts in the record. Secondly, it's
8 irrelevant. Nobody's proposing to do that.

9 MR. NAFICY: Well, if the actual amount
10 of eelgrass in the Bay is irrelevant, then why is
11 it irrelevant to -- I ask the next question which
12 is, what if the entire Bay was eelgrass. I mean
13 would it still be irrelevant to --

14 HEARING OFFICER FAY: Wait --

15 MR. NAFICY: -- what is the proper --

16 HEARING OFFICER FAY: -- Mr. Naficy, it
17 does seem wildly speculative to me. But I'm
18 interested in the concept. Can you rephrase it in
19 terms of percentages or something? There is no
20 proposal to create a total environment of
21 eelgrass.

22 If what you're trying to gather is is
23 there a point beyond which that's not a good thing
24 to do, let's pursue that.

25 MR. NAFICY: Is there a point beyond

1 which more eelgrass is not useful?

2 (Laughter.)

3 MR. CAMPBELL: I think you missed the
4 statement. I didn't say it was irrelevant. I
5 said it was irrelevant to our analysis. So what
6 I'm saying is from the standpoint of the analysis
7 the amount of eelgrass that is, whether it's
8 expanded in the last little while, or it's
9 contracted, was not relevant to the analysis.

10 In terms of the amount of eelgrass,
11 there is a point at which there's too much, yes.

12 MR. NAFICY: And where is that point, in
13 your opinion?

14 MS. KUHN: I think what I'd like to do
15 is clarify just a little bit. The amount of
16 eelgrass that's currently present in the Bay is
17 not an input variable that we put into the HEA
18 model that helps us understand the ecological
19 benefits associated with creating an acre of
20 eelgrass.

21 Now, notwithstanding that, we have input
22 variables to help us understand what the benefits
23 are associated with creating eelgrass. One of the
24 reasons why we created representative projects was
25 to give the administering manager the ability to

1 designate what type of habitat they wanted
2 created.

3 We've talked about adaptive management.
4 If there's a point in the Bay system where more
5 eelgrass restoration is inappropriate, then we
6 would expect the NGO or the manager of this find
7 to make that designation and to tailor the
8 restoration programs appropriately.

9 MR. NAFICY: Well, the actual acreage of
10 eelgrass is not the only thing that is contested
11 here. Whether the HEA model is appropriate is
12 also contested.

13 Therefore, it would be appropriate to
14 explore whether the outcome of applying the model,
15 which doesn't take into account acreage of
16 eelgrass in the Bay yields an appropriate and
17 reasonable result. Hence, the question whether
18 you take into account the acreage of eelgrass in
19 the Bay.

20 MS. KUHN: And you're correct. The
21 amount of eelgrass in the Bay, however, does not
22 affect the ecological value generated from an acre
23 of eelgrass. That's driven by the energy transfer
24 rate that we use and the productivity rate that we
25 attribute to that type of habitat.

1 Those are independent variables to the
2 amount that's there. Now, whether the manager of
3 the fund selects that project is determined by
4 whether that manager believes that resource is of
5 high priority and worthy of the restoration
6 project.

7 MR. CAMPBELL: And the reason we
8 selected eelgrass restoration was because we
9 interviewed the resource managers with the NEP,
10 the Corps of Engineers; we spoke with the Harbor
11 Master. And each of those parties indicated that
12 eelgrass would be a useful restoration project.

13 And again, I do point back to what Ms.
14 Kuhn said, these are representative projects. And
15 if it's determined that that's not an appropriate
16 project, something else can be conducted.

17 MR. NAFICY: I have a difficult time
18 thinking of the Army Corps as a resource manager.

19 MR. ELLISON: Objection, that was not
20 stated.

21 (Laughter.)

22 HEARING OFFICER FAY: I'm not going to
23 rule on that.

24 MR. NAFICY: That was supposed to be a
25 joke.

1 HEARING OFFICER FAY: The dicta is that
2 you're --

3 (Laughter.)

4 MR. NAFICY: Now, looking at the
5 prediction of the eelgrass, whether it's actually
6 ultimately going to be one of the projects or not,
7 but there is a -- one of the appendices predicts a
8 hundred years of service at 100 percent yield from
9 the eelgrass habitat.

10 Now, have you studied --

11 MR. ELLISON: Objection. It doesn't say
12 that.

13 MR. NAFICY: Will you correct me? What
14 does it actually say about credit that we can
15 expect from the eelgrass habitat?

16 MS. KUHN: I'm going to refer you to Mr.
17 Campbell; he's given testimony today on that exact
18 variable, so.

19 MR. CAMPBELL: What we're projecting is
20 that a certain amount of crab and fish biomass
21 will be produced by that eelgrass. We're not
22 saying that the eelgrass will function at 100
23 percent of its overall productivity.

24 MR. NAFICY: Okay. Is there a formula
25 between the quality of the eelgrass habitat and

1 the yield, whether it's 4 percent for crabs, or 10
2 percent?

3 MR. CAMPBELL: Yeah. It starts off with
4 the total amount of green biomass primary
5 production. Then we take a 4 percent energy
6 transfer rate, which is the lowest energy transfer
7 rate that I'm aware of in the literature.

8 And then we, to translate that into
9 fish, we take another 10 percent of that. And
10 that gives us .4 percent.

11 And we believe that each of those
12 transfer rates are -- they're overly conservative,
13 and therefore setting our 100 percent bar, merely
14 means that we will hit that target amount of
15 biomass that will be produced by that acre of
16 habitat. Not that it will be robust, completely
17 productive eelgrass habitat.

18 MR. NAFICY: Are you familiar with
19 studies that have looked at the success of
20 eelgrass restoration projects?

21 MR. CAMPBELL: I'm familiar with some
22 studies, as are other members of the panel.

23 MR. NAFICY: And do you know what the
24 studies show about the success rate of eelgrass
25 plantings? Whether after, you know, two years you

1 have what percentage of the eelgrass planted has
2 survived.

3 MR. CAMPBELL: I can refer you to the
4 National Marine Fisheries Service guidance on
5 eelgrass planting. Do you have a copy of that
6 handy?

7 (Pause.)

8 MR. CAMPBELL: This is their 1991
9 mitigation policy. And what that policy indicates
10 is that they're allowing for mitigation with the
11 expectation that within three years of the
12 beginning of the project that it'll be operating,
13 that it'll reach full fishery utilization within
14 three years.

15 And it gives various success criteria.
16 Not all eelgrass projects are successful. And
17 that is why we have included in our project
18 funding an opportunity for adaptive management and
19 for corrective measures.

20 And we believe that specifically applied
21 to Morro Bay, with that adaptive management and
22 corrective measures allowed for, that we should
23 have a good likelihood of success.

24 MR. NAFICY: So, with corrective
25 measures you think you can achieve the 4 percent

1 energy transfer yield for the life of the project?

2 MR. CAMPBELL: No. No. I think that
3 the 4 percent energy transfer yield assumes a
4 relatively modest success in terms of the
5 eelgrass. A lot of the things that Dr. Ambrose
6 has pointed out indicates that some eelgrass and
7 some marsh don't operate at 100 percent of their
8 overall productivity.

9 But when you take a 4 percent transfer
10 rate and apply it to that situation you're
11 assuming that it's not a particularly productive
12 eelgrass bed or salicornia marsh.

13 MR. NAFICY: I'm sorry, I should have
14 brought this up before this last question, but I
15 want to direct your attention to again Duke's
16 testimony on page 7 where there's a discussion of
17 the six restoration projects.

18 And after eelgrass habitat there is the
19 sentence that starts: This project seeks to
20 restore historical eelgrass habitat lost due to
21 in-filling by watershed."

22 And I wanted to -- watershed and beach
23 sediments. So I wanted to kind of parse this out.
24 and find out first of all what's meant by
25 historical eelgrass habitat. Does that refer to

1 acreage or specific locations where there used to
2 be eelgrass beds?

3 MR. CAMPBELL: We would not attempt to
4 put eelgrass in any location that hadn't
5 historically had eelgrass present in it.

6 What we can do is look back at the
7 bathymetry work that has been done since the turn
8 of the century and I think Dr. Mayer would support
9 me in this in saying that eelgrass productivity is
10 in significant part of elevation. And so we would
11 not go in and try to create eelgrass in a place
12 where eelgrass had not historically been.

13 MR. NAFICY: So the idea here is to
14 restore eelgrass to habitat that has been
15 historically suitable, but is presently
16 unoccupied? Is that --

17 MR. CAMPBELL: The reason it's
18 unoccupied is because the elevation has changed
19 through sedimentation.

20 MR. NAFICY: Okay. Another one of the,
21 as you probably recall, another one of the
22 projects that I was particularly interested in was
23 the sandspit stabilization project, and CAPE
24 included some information in its testimony. And
25 then there was --

1 HEARING OFFICER FAY: Excuse me,
2 sandspit stabilization?

3 MR. NAFICY: Sandspit stabilization
4 project.

5 HEARING OFFICER FAY: Okay.

6 MR. NAFICY: It's a bit hard to say.

7 (Laughter.)

8 MR. NAFICY: And so I was -- and then
9 Duke filed their rebuttal, and I was interested
10 in -- first of all, who should I direct my
11 questions to? Who's the plover person?

12 MS. KUHN: Do you --

13 MR. ELLISON: Why don't you direct the
14 questions to Mr. Johnson; he's the lead witness.
15 And then if he believes it's appropriate to refer
16 it to some other member of the panel, he will do
17 that.

18 MR. NAFICY: Okay. First of all I was
19 interested to know what sources were consulted to
20 come up with this rebuttal?

21 MR. JOHNSON: Which rebuttal is that?

22 MR. NAFICY: Duke's rebuttal to CAPE on
23 page 15.

24 MR. ELLISON: Are you asking for all the
25 sources that were consulted for the entire

1 rebuttal? Or is there something specific?

2 MR. NAFICY: No, no. Well, specifically
3 on the sandspit stabilization project rebuttal.

4 MR. JOHNSON: Go ahead, Dr. Mayer.

5 DR. MAYER: There is a footnote on that
6 section.

7 MR. NAFICY: Well, then the answer may
8 be the footnote.

9 DR. MAYER: It identifies the source of
10 the information that was used in that. Some of
11 the source.

12 MR. NAFICY: Right, so if that's all
13 there is then the answer would be that footnote is
14 the universe of sources? Is that the answer?

15 MR. ELLISON: I thought he -- are you
16 referring to just the specific statement -- I'm
17 sorry, I'm lost.

18 Can you show me where on page 15, what
19 statement you're looking for the source of, first
20 of all?

21 MR. NAFICY: It was a general question.
22 It says on page 15, starting on page 15 it says,
23 the sandspit stabilization project would not
24 threaten the snowy plover. And then it follows
25 for another page and a third, maybe; it ends on

1 page 17.

2 So I'm asking for the sources that were
3 consulted to arrive -- to formulate this rebuttal.

4 MR. ELLISON: Okay, so your question is
5 what are all the sources that were consulted for
6 all of what is designated as section 10 beginning
7 on page 15 through 17?

8 MR. NAFICY: Right. And I'm not trying
9 to be unreasonable. If it's, you know, many many,
10 just we can go with the top five. But, you know,
11 I just was -- because none were listed that I
12 could see in the references.

13 DR. MAYER: The person to answer this is
14 Ms. Kuhn, but there's also other sources, of
15 course, listed in that full text that you're
16 talking about now.

17 MS. KUHN: Okay. I'm sorry but I'm
18 going to have to ask you to show me exactly where
19 that statement is, because I'm of the opinion the
20 statement that you made is not in this text.

21 So, could you tell me --

22 MR. NAFICY: I'm sorry, I --

23 MS. KUHN: -- the exact sentence that
24 you're interested in?

25 MR. NAFICY: That's the headline on page

1 15, the title for the rebuttal section on this
2 project reads: The sandspit stabilization project
3 would not threaten the snowy plover."

4 And then there follows about two pages
5 of text.

6 MS. KUHN: Okay.

7 MR. NAFICY: So that entire section.

8 MS. KUHN: Okay. I'm clear now.

9 MR. NAFICY: Okay.

10 MS. KUHN: Now, for the formulation of
11 this text I relied on your reference to the snowy
12 plover recovery program plan, which you entered
13 into exhibit in your testimony.

14 I also referred to the document noted in
15 the footnote which is that the recovery plan, the
16 website. And then I consulted an expert in snowy
17 plover, myself, a colleague.

18 MR. NAFICY: But you haven't identified
19 who you consulted in your testimony, is that
20 correct?

21 MS. KUHN: Well, I can.

22 MR. NAFICY: Well, you don't have to. I
23 just want to make sure --

24 MS. KUHN: I can, but I'm not --

25 MR. NAFICY: -- I didn't miss --

1 MS. KUHN: -- well, I just want -- no, I
2 did not because I'm not attempting to put that
3 expert's testimony into this record. But I did
4 seek information from my peers and colleagues that
5 are experts in this particular area before we
6 formulated this project.

7 MR. NAFICY: Okay, and is it your
8 opinion that the area of the sandspit that Duke is
9 proposing to implement this project on remains
10 unused by plovers?

11 MS. KUHN: Well, I would like to say
12 that I don't know that I necessarily agree with
13 your characterization that we've selected a site
14 for this project. Because, in fact, we have not.

15 What we've done is we've said there's a
16 restoration technique, or there's a restoration
17 goal that's been articulated by a number of the
18 resource managers. There is concern about -- sand
19 transport and its subsequent in-filling of Bay
20 volume in the back Bay portions.

21 That's a well articulated concern in
22 this Bay system. And PWA noted in their report
23 possible sand stabilization projects. The City of
24 Morro Bay has indicated concern of the migration
25 over some portions of the barrier island. So, we

1 took those ideas and those concerns and formulated
2 a representative project that's supposed to
3 represent the potential application of a
4 restoration technique in a particular area of the
5 Bay to address a particular concern.

6 MR. NAFICY: Having said all of that,
7 the proposal here is not to include sand
8 stabilization in what the HEP characterizes as the
9 northernmost tip of the sandspit?

10 MS. KUHN: We've suggested that that
11 area may be appropriate. However, we've also said
12 any work that was done there would need to be done
13 consistent with the resource manager for the snowy
14 plover.

15 MR. NAFICY: And when you say the City
16 of Morro Bay, who in the City of Morro Bay has
17 discussed this project with you?

18 MS. KUHN: It's my understanding the
19 City of Morro Bay owns a portion of this property
20 in the sandspit area. And we talked with Mr. Rick
21 Alger.

22 MR. NAFICY: Okay. Have you seen what I
23 sent out last week, this map that I was hoping to
24 include as an exhibit, you know, when CAPE has its
25 testimony. Have you seen this map that was sent

1 out?

2 HEARING OFFICER FAY: Just to help
3 everybody, that's been identified in our list as
4 exhibit 311.

5 MS. KUHN: I have a copy. Unfortunately
6 it's not a very legible copy for me. I would hope
7 that you could provide me with perhaps a better
8 copy. I think I have a fax of a fax or something.

9 I would also like to remind everyone
10 that this project is a very small percent of the
11 overall HEP project. It is approximately .5
12 percent of the overall credit associated with
13 Duke's proposed HEP project, so.

14 Okay, I can read this a lot better.

15 MR. NAFICY: Okay, now this map, I
16 apologize, I couldn't find exactly something that
17 referred to it, but this was a map that a
18 colleague of mine received from the State Parks
19 Department that owns a large portion of the
20 sandspit.

21 Do you see on the tip of the sandspit
22 that there appears to be approximately eight or
23 nine locations where in 2000 there were snowy
24 plover nests, according to this map?

25 MR. ELLISON: Actually, before we go any

1 further, is that the best identification you have
2 for the source of this map? I think it would
3 benefit the record if you knew -- this appears to
4 be from a larger document of some kind.

5 MR. NAFICY: It's a map that was
6 produced after they compiled the data that they
7 collected. And it says location of the western
8 snowy plover nests on the Morro Bay sandspit in
9 2000.

10 I looked through the pile of documents
11 that my colleague had received from State Parks,
12 and I couldn't find an identification of this, a
13 reference to this in another map.

14 Now, this is an old map that was used in
15 the Jocelyn study without the locations. But, I
16 mean if there's a question about its authenticity,
17 I can get it authenticated. But I think we can
18 leave that question open and just -- and I'm going
19 to move on from it in two seconds.

20 I just wanted to see if, assuming that
21 this map is what it purports to be, if you would
22 reconsider the statement that much of the sandspit
23 remains unused by plovers.

24 MS. KUHN: Well, if we assume that these
25 nesting locations that are identified on here are

1 correct, and -- the portion that we were looking
2 at as potential location for restoration project
3 is unused by snowy plover.

4 It's not the nature and substrate, it
5 doesn't have the consistency that's desirable for
6 snowy plover as per the snowy plover recovery
7 plan. The recovery plan is very specific in
8 articulating what type of habitat the plovers need
9 and require.

10 And when I consulted with my colleagues
11 that are snowy plover experts, and if you'll refer
12 to the plan, I believe that Fish and Wildlife,
13 nowhere in their plan do they say that restoration
14 activities are mutually exclusive with snowy
15 plover habitat.

16 In fact, Fish and Wildlife, on their
17 website where they have the snowy plover recovery
18 plan, have some guidance documents there; and they
19 acknowledge the need for beach stabilization. And
20 that it provides some benefits, and it's is often
21 conducted adjacent to or nearby snowy plover
22 habitat.

23 Certainly I don't believe we'd ever be
24 proposing that we would conduct it in the middle
25 of habitat. That perhaps adjacent to or nearby

1 the habitat. The sand stabilization project may,
2 in fact, confer benefits to the snowy plover
3 habitat; if it's properly formulated, properly
4 timed with the seasonal use of the area and so on
5 and so forth.

6 So, nowhere does Fish and Wildlife, as
7 the resource manager for this endangered species,
8 say beach stabilization is mutually exclusive with
9 snowy plover habitat, or being areas adjacent to
10 that.

11 MR. NAFICY: You know, I wasn't really
12 questioning the wisdom of the project. I was just
13 talking about whether it's occupied or not.

14 But since you're referring to snowy
15 plover habitat at great length, what do you
16 understand to be snowy plover habitat? I mean do
17 you understand that to include nesting habitat or
18 what else?

19 MS. KUHN: It's my understanding from
20 talking with one of the members of the snowy
21 plover recovery team that, in fact, this area is
22 utilized by snowy plover for nesting, foraging,
23 roosting habitat. So it provides multiple
24 services to snowy plover.

25 At no time is Duke trying to take the

1 position that the area is not utilized in some way
2 by snowy plover. I think that we have good
3 information, whether it's this report or not, I
4 think we have good information that, in fact, they
5 do use it. To the degree and extent I don't know
6 that we really have sufficient data to really have
7 our arms around that.

8 So, you know, I don't dispute that in
9 fact they may use this for some of the services.

10 MR. NAFICY: So you said earlier, just a
11 few minutes ago, that this is a small piece of, or
12 a small project relative to the other projects
13 that Duke is proposing, is that correct?

14 Now, under cost/benefit analysis --

15 MR. ELLISON: I'm sorry, you asked a
16 question. Do you want an answer?

17 MR. NAFICY: Well, she actually nodded
18 her head.

19 MR. ELLISON: Oh, okay.

20 MR. NAFICY: It was inaudible, so --

21 MR. ELLISON: I didn't see that.

22 MR. CAMPBELL: Well, I'd like to correct
23 the record. That was not a nod to what your
24 question was.

25 MR. NAFICY: Oh, well, --

1 (Laughter.)

2 MS. KUHN: That must have been an
3 uncontrollable nod, lack of caffeine or something,
4 I don't know, but it was not a yes to your
5 question.

6 HEARING OFFICER FAY: Better start from
7 scratch.

8 MR. NAFICY: Yeah. You made a statement
9 a few minutes ago about the relative size of this
10 particular project, relative to the other projects
11 being proposed here, do you recall?

12 MS. KUHN: I made a statement as to the
13 relative size of the benefits conferred by this
14 project.

15 MR. NAFICY: And in terms of cost/
16 benefit analysis for this project relative to
17 other possible projects, how do you think this
18 project rates?

19 MS. KUHN: Well, I think, if you'll take
20 a look at our HEP we indicate that it is one of
21 the lower ones, as far as providing -- achieving
22 our goals.

23 However, we included it because it was
24 illustrative of a restoration technique that could
25 address one of the concerns that have been

1 articulated in this area. It's not a mandatory
2 project.

3 MR. NAFICY: Any other projects you feel
4 that would qualify as mandatory?

5 MS. KUHN: No. And I think that's been
6 the whole point of the HEP, itself, is that the
7 representative projects, and that whoever
8 administers the HEP funding would have the
9 discretion and flexibility to choose the projects
10 that they wanted, that they felt would be most
11 successful.

12 MR. NAFICY: So would it be fair to say
13 then that this project was, in large part, chosen
14 because of local interest?

15 MS. KUHN: I believe that all of our
16 projects were endorsed by a number of agencies.
17 We went to great efforts to select all six
18 projects have been listed on either the TMDL
19 project list, under the Morro Bay National Estuary
20 Program project list, or under a project list
21 preliminarily identified by the Army Corps of
22 Engineers.

23 So we believe all of our projects have
24 some stakeholder acceptance and consistency with
25 their goals and objectives.

1 MR. NAFICY: I understand that, but in
2 terms of this particular project, to have been
3 chosen where there are other projects that are
4 also available, is it fair to say that this
5 project was chosen because of local interest?

6 MS. KUHN: I don't believe that's a fair
7 characterization. I believe we chose this project
8 because it is illustrative of a particular
9 technique, and it's also illustrative of the fact
10 that restoration can occur when done properly in
11 coordination with the resource manager for an
12 endangered species that can occur adjacent to
13 habitat, and actually not be mutually exclusive,
14 and have some peripheral benefits.

15 MR. NAFICY: So you're saying making
16 that illustration was one of the reasons why this
17 project was chosen?

18 MS. KUHN: One of the reasons the
19 project was chosen is because all the resource
20 agencies and the resource managers articulated a
21 concern over aeolian transport of sand. And Bay
22 in-filling as a result of that.

23 This area is an area where the Army
24 Corps of Engineers has deposited a large volume of
25 dredged material. There has been concern over the

1 migration of that artificially placed material and
2 its migration into the Bay, and the removal and
3 loss of Bay volume as a result of its migration.
4 That's why we selected it.

5 MR. ELLISON: If it helps you, Mr.
6 Naficy, if it might speed things along, there's a
7 whole section of Duke's testimony on the criteria
8 for project selection.

9 MR. NAFICY: Yeah, actually, and that's
10 sort of where I'm headed because there is a long
11 list of criteria. And then that long list of
12 criteria was whittled down to four in the power
13 plant. And I'm trying to understand how project
14 selection actually worked.

15 This is to the panel: Was there a list
16 of projects that were high in priority and then
17 the selections made from that list? Or how were
18 these projects selected?

19 MR. JOHNSON: Linda.

20 MS. KUHN: In large part what we did is
21 we went to the different resource managers and
22 organizations interested in managing resources,
23 i.e., Morro Bay National Estuary Program. We went
24 to the CCMP, looked at the projects and the
25 concerns they articulated.

1 We looked at material generated by the
2 Regional Water Quality Board, by their TMDL study
3 generated by Philip Williams. We had
4 conversations with the Army Corps of Engineers
5 about their preliminary understanding and scoping
6 of their restoration program for the Bay.

7 And that's how we developed a list of
8 projects to work from.

9 MR. NAFICY: Well, you just described
10 the universe of projects that existed in the
11 universe of, you know, regulatory and other
12 stakeholders.

13 I was more interested in the mechanics
14 of how some projects were eliminated and these
15 chosen, if there was a mechanism that you can
16 describe.

17 MS. KUHN: Well, we went through that
18 list and we applied our selection criteria. And
19 from that we developed our project list.

20 If you're asking was there a precise
21 quantifiable formula applied, no.

22 MR. NAFICY: I want to change gears and
23 talk about the biomass issue and that portion of
24 the --

25 HEARING OFFICER FAY: Excuse me, --

1 MR. NAFICY: -- HEA analysis.

2 HEARING OFFICER FAY: -- Mr. Naficy,
3 since you are changing gears, this also happens to
4 be the time that I'd calculated our second break.
5 So, I'd like to take that now, and you will be
6 back on the record in ten minutes.

7 MR. NAFICY: Okay.

8 (Brief recess.)

9 HEARING OFFICER FAY: On the record.
10 All right.

11 MR. NAFICY: Let the record reflect that
12 I can't ask questions from an empty chair.

13 HEARING OFFICER FAY: Right, let's go
14 off the record. Go off the record until Duke
15 shows up.

16 (Off the record.)

17 HEARING OFFICER FAY: On the record.

18 MR. NAFICY: Okay. The area I want to
19 turn to next is the area of the biomass which has
20 been offered as the metric, if you will, for the
21 HEA analysis.

22 And first of all, I wanted to ask if
23 this notion of biomass, if it distinguishes
24 between different species, or it treats all
25 species generically?

1 MR. CAMPBELL: Biomass is a product of
2 the habitat from which the biomass comes from. So
3 in the way that we specifically applied the HEA in
4 this instance, we were sensitive to species
5 because we wanted to make sure the biomass being
6 produced was similar to the biomass that was being
7 consumed.

8 MR. NAFICY: So let me ask my question
9 again. Does the notion of biomass distinguish
10 between different species that may comprise any
11 given unit of biomass?

12 MR. CAMPBELL: I'm not sure I --

13 MR. ELLISON: Asked and answered. And,
14 frankly, asked and answered by the staff, too.

15 MR. NAFICY: Well, move to strike as
16 nonresponsive. I want to reask it again, because
17 that wasn't exactly an answer to my question.
18 It's a very simple question.

19 MR. ELLISON: And he gave you the
20 answer.

21 MR. NAFICY: I move to strike because
22 that was not responsive. The question is does
23 biomass distinguish -- the notion of biomass as a
24 metric distinguish among the different species
25 that make up that biomass, yes or no.

1 HEARING OFFICER FAY: Answer the
2 question, please.

3 MR. CAMPBELL: I really don't --
4 biomass, if you're talking about biomass you're
5 not distinguishing between green biomass -- the
6 question doesn't make any sense.

7 MR. NAFICY: Well, let's refine it then.
8 Let's talk about green biomass, as you call it.
9 Does it distinguish among different species that
10 may make up a unit of green biomass?

11 MR. CAMPBELL: What you're talking
12 about, I assume, is primary productivity?

13 MR. NAFICY: No, I'm talking about, you
14 know, a unit -- 100 kilo of biomass, green
15 biomass. Can that tell you what species are
16 included in that 100 kilos of green biomass?

17 MR. ELLISON: I'm going to object. I,
18 for one, don't have any idea what green biomass is
19 or what you're talking about.

20 Do you understand the --

21 MR. CAMPBELL: Primary productivity, if
22 you're talking about primary productivity, primary
23 productivity is eelgrass or salicornia marsh.

24 (Parties speaking simultaneously.)

25 HEARING OFFICER FAY: Excuse me, --

1 MR. CAMPBELL: -- as it was applied --

2 HEARING OFFICER FAY: -- to object.

3 You're talking specific to this environment. The
4 question I heard asked is does the term green
5 biomass distinguish among species.

6 It seems to me like a very generic term.
7 Is that correct, yes or no? Does it distinguish
8 which species of green vegetation?

9 MR. CAMPBELL: Primary productivity does
10 not distinguish between species of vegetation. I
11 thought he was referring to species of fish, et
12 cetera.

13 MR. NAFICY: Well, that's my next
14 question. When you talk about biomass with fish,
15 does it distinguish among species of fish?

16 MR. ELLISON: Does what distinguish?

17 MR. NAFICY: The term biomass as it's
18 applied to fish biomass, if you will. Does it
19 distinguish among different species of fish that
20 may make up 100 kilo of fish biomass?

21 MR. ELLISON: Okay, well, let me ask for
22 a clarification, because this is important. Are
23 you asking whether the HEA, as applied in this
24 case, was sensitive to the kind of biomass? Or
25 are you asking for the biomass as it's used in

1 some other case or generally or --

2 MR. NAFICY: Is there a definition of
3 biomass that transcends how it's used in this
4 case? Or are we using it as a term of art for the
5 context of Duke's HEP?

6 I understood it to be a term that
7 applies kind of across the board, and it has a
8 meaning that other people in other states
9 understand.

10 MR. ELLISON: I'm not trying to be
11 difficult, honestly.

12 MR. NAFICY: I'm sure.

13 (Laughter.)

14 MR. ELLISON: If you are asking him does
15 the HEA approach, as applied in this case, okay,
16 distinguish among the species, that's a question I
17 think he could understand and answer.

18 If you want to ask him about biomass as
19 it's used generally in the world, at least be
20 clear that that's what you're saying. And whether
21 he can answer it, I have no idea.

22 HEARING OFFICER FAY: I'm going to limit
23 the question to biomass as used by Duke.

24 MR. CAMPBELL: As used by -- I'm sorry?

25 HEARING OFFICER FAY: As used by Duke in

1 its HEP, when they talk about conversion of
2 biomass. That's what I'm interested in hearing
3 about.

4 MR. NAFICY: Sure. I'll be easy. Go
5 ahead.

6 MR. CAMPBELL: Yes, it does.

7 MR. NAFICY: How?

8 MR. CAMPBELL: By the selection of the
9 habitat. In other words, if you select a
10 particular habitat in this area you're going to
11 produce a particular mix of biomass.

12 MR. NAFICY: Right, so have you
13 inventoried the species that will occur for each
14 of the individual habitat that Duke is proposing
15 to restore or preserve here?

16 MR. CAMPBELL: We have not, but I think
17 it is a reasonable assumption that the habitats
18 that are currently present in the Bay will produce
19 the same types of biomass that are currently in
20 the Bay. We --

21 MR. NAFICY: Do you know -- I'm sorry,
22 were you done? Are you aware of how many
23 different species occur in the Bay? Species of
24 fish.

25 MR. CAMPBELL: I would rely on Dr.

1 Mayer. Dr. Mayer.

2 DR. MAYER: On what basis?

3 MR. NAFICY: On what basis, --

4 DR. MAYER: Right.

5 MR. NAFICY: -- I don't understand --

6 DR. MAYER: Well, let me clarify for
7 you. There are species of fish that are resident;
8 there's species of fish that are migratory.
9 There's species of fish that have come and gone on
10 different inventory lists.

11 MR. NAFICY: Well, I'd appreciate it if
12 you answer all of those.

13 DR. MAYER: I'm going to refer back to
14 some information we've provided in the 316(b)
15 report. And I don't have that at my fingertips
16 right now, but that gives you a very thorough
17 listing of the folks who've done inventories of
18 Morro Bay that were at hand. And they're included
19 in that report, as well as our own studies of
20 larval fish.

21 The other aspect is whether or not
22 you're asking in terms of larval or adult fish, or
23 juvenile fish.

24 MR. NAFICY: Well, are you aware of any
25 studies that correlate certain species of fish

1 with certain type of habitat within the Bay?

2 DR. MAYER: No, I'm not. In Morro Bay?
3 You're talking about Morro Bay, --

4 MR. NAFICY: Correct.

5 DR. MAYER: -- specifically?

6 MR. NAFICY: Correct.

7 DR. MAYER: No, I'm not. There's, as
8 you have probably seen scattered throughout
9 various documents and testimony there's the
10 studies of Jocelyn which looked at listing of
11 species in the Bay, and attempted to put those in
12 terms of elevations. Possibly habitat, too.

13 MR. NAFICY: So, one of the appendices
14 that was in the HEP, the one that actually was
15 corrected today as to the biomass created on the
16 credit side, --

17 MR. ELLISON: It would speed things
18 along if you'd give us a specific reference.

19 MR. NAFICY: Wait, I'm looking for it.
20 It's under errata. It's the one where you
21 corrected the length of the fish.

22 Okay, page 123. This is the table under
23 7 it says loss per year in kilograms. I assume
24 that has to be corrected, as well. But this 4670
25 is based on a certain composition of different

1 fish contributing different percentages, is that
2 correct?

3 MR. CAMPBELL: That's correct.

4 MR. NAFICY: And I assume that idea of
5 the HEA is that on the credit side there is also a
6 yield of biomass that, according to Duke, will be
7 greater than the figure here, is that correct?

8 MR. CAMPBELL: That is correct.

9 MR. NAFICY: But while we have some
10 information about the composition of the biomass
11 on the debit side, we don't have comparable
12 information about the species that make up the
13 biomass on the credit side, is that correct?

14 MR. CAMPBELL: I don't agree with that.
15 The fact is that the habitats that are currently
16 present within the Bay produce this mix of fish.
17 And we've already had testimony that the fact is
18 that the habitats, if they are preserved in the
19 Bay, will continue to be able to produce a similar
20 mix.

21 You may actually have some species that
22 actually perform a little bit better because they
23 are more reflective of a healthier habitat. You
24 may have some that don't perform as well because
25 they were taking advantage of the fact that the

1 habitat was subject to significant sedimentation.

2 MR. NAFICY: Also with respect to the
3 biomass on the debit side, we have an
4 understanding of the age of the specimen that make
5 up the biomass, would you agree with that?

6 MR. CAMPBELL: On the credit side?

7 MR. NAFICY: On the debit side.

8 MR. CAMPBELL: On the debit side. Yes.

9 MR. NAFICY: Do we have, on the credit
10 side, information about the age of the specimen
11 that make up the biomass on the credit side?

12 MR. CAMPBELL: We do not.

13 MR. NAFICY: I'm sorry?

14 MR. CAMPBELL: We do not.

15 MR. NAFICY: Okay. So, I know this is
16 getting old, but we have an idea about the number
17 of specimen that make up the biomass on the debit
18 side, is that correct?

19 MR. CAMPBELL: Yes, we do.

20 MR. NAFICY: But on the credit side we
21 don't have an idea of the number of specimen that
22 make up that biomass?

23 MR. CAMPBELL: That is correct.

24 MR. NAFICY: Okay. Is it true that
25 different aged species of fish are food for

1 different types of predators?

2 DR. MAYER: Are we talking specifically
3 here, certain species, certain locations?

4 MR. NAFICY: No. We're talking about,
5 the species that eat larvae of gobies, are they
6 the same species that eat adult gobies?

7 DR. MAYER: I wouldn't know that.

8 MR. NAFICY: Okay. I'm going to talk a
9 little bit about performance criteria and what
10 would be appropriate monitoring.

11 Would Duke consider the HEP a success if
12 the rate of sedimentation -- for that upland
13 restoration projects, if the rate of sedimentation
14 was reduced by whatever amount Duke predicts?
15 Would that mean that the HEP was successful?

16 MS. KUHN: I'm sorry, can you ask me the
17 question one more time now that we've decided
18 who's going to answer it?

19 (Laughter.)

20 MR. NAFICY: Sure, be happy to. With
21 respect to upland sediment control projects, would
22 Duke consider the projects successful if the
23 estimate of the amount of sedimentation that would
24 be arrested is achieved through the implementation
25 of the --

1 MS. KUHN: I believe that would be one
2 of the physical parameters that would be
3 appropriate to measure.

4 MR. NAFICY: Are there other measures
5 that you would recommend for monitoring or for
6 deciding whether the project has been successful?

7 MS. KUHN: I am going to pitch this over
8 to Dr. Mayer.

9 DR. MAYER: Restate, please. Or repeat.

10 MR. NAFICY: Ms. Kuhn agreed that one of
11 the measures for deciding whether the upland
12 restoration projects is whether it meets its
13 targets for amount of sediment trapped.

14 I wanted to know if you believed there
15 are other measures that go into deciding whether
16 those upland restoration projects have been
17 successful.

18 DR. MAYER: I think that's a very good
19 index. As we've talked about before, the amount
20 of sediment kept from the Bay as a part of our
21 preservation efforts to keep in place the
22 productivity of the Bay for the future.

23 MR. NAFICY: Perhaps I wasn't clear
24 about my question. Besides measuring how much
25 sediment was trapped due to these upland projects,

1 what other criteria would you look for to decide
2 whether the project has been successful, if any?

3 DR. MAYER: I think some of the
4 references to earlier studies of habitat projects
5 may be of a similar nature; outline some of the
6 things that can be done. Dr. Cailliet spoke to
7 those this morning, of logical parameters that can
8 be measured as part of a way to understand the
9 performance or the success of projects.

10 MR. NAFICY: Dr. Mayer, I'm not asking
11 what someone else said, I'm asking you to take a
12 position on behalf of Duke as to what other
13 criteria would you look for, if any?

14 DR. MAYER: Well, we've outlined in our
15 baseline monitoring program a number of the
16 criteria which established the general context of
17 looking for change, or the association of these
18 projects with the future of the Bay.

19 MR. NAFICY: Do you recall what those
20 are?

21 DR. MAYER: I can read those to you.

22 MR. NAFICY: Well, --

23 DR. MAYER: They're in appendix B of our
24 HEP monitoring proposal.

25 MR. NAFICY: But as you sit here today

1 you couldn't just tell me what you believe are the
2 other criteria that may have to be consulted, is
3 that correct?

4 MR. ELLISON: Objection.

5 HEARING OFFICER FAY: Mr. Naficy, if
6 they've --

7 MR. ELLISON: He's just trying to be
8 precise.

9 HEARING OFFICER FAY: -- referred to
10 them in their testimony, perhaps we can all just
11 look to that when we have a chance. And you could
12 move on. Unless there's a specific one that you
13 wanted to pick --

14 MR. NAFICY: Well, I mean Dr. Mayer is a
15 biologist, you know, and he's the primary biology
16 witness for Duke. And I'm asking what I think is
17 a fairly noncontroversial question. And, you
18 know, we can all read the testimony, you know,
19 what has been filed at home much more
20 conveniently.

21 We're here to take oral testimony. So,
22 if it's not --

23 HEARING OFFICER FAY: Okay, --

24 MR. NAFICY: -- appropriate for me to
25 ask, I'll move on.

1 HEARING OFFICER FAY: -- it's part of
2 the record. It's already part of the record, or
3 will be when it's admitted.

4 MS. KUHN: Could I add one other
5 statement. I'd like to add one other statement in
6 response. You'd asked about measuring sediment.
7 And I do believe that is an appropriate measure.

8 One of the things we also might look at
9 is the stability of the structure, itself. If we
10 were, in fact, going to build a sediment trap, we
11 would want to make sure that it was engineered
12 properly. And that, in fact, the structure was
13 maintained on that, so that it could, in fact,
14 function the way that we had, you know, designed
15 it to do.

16 So, looking at the structure and its
17 stability is also another parameter.

18 MR. NAFICY: I was actually looking more
19 for indices or criteria within the Bay, itself.
20 Not up in the upland habitat to see whether the
21 sand trap is working properly. But something else
22 in the Bay besides what is happening upland, which
23 is trapping sediment.

24 Is there anything in the Bay, itself,
25 that we can look to to decide whether this project

1 is successful or not? And, you know, if you don't
2 want to add anything to what's already in the
3 testimony, we can move on.

4 DR. MAYER: I would just say that
5 taking, I thought, what was the earlier answer and
6 extending that, I think the trapping of sediment
7 also, we expect to be reflected in the elevation,
8 the bathymetry of the Bay as it goes into the
9 future. That's one of the design criteria is to
10 prevent the further in-filling of the Bay. So
11 obviously the bathymetry in the Bay would be one
12 thing that we'd look at.

13 MR. NAFICY: Okay, so let's take this
14 eelgrass habitat that has, you know, been sort of
15 touted as a very valuable thing. Would you expect
16 more or less eelgrass habitat within the Bay as a
17 result of the upland restoration projects? Or
18 would the amount of eelgrass 25 years from now in
19 the Bay bear no relationship due to success of
20 these projects?

21 DR. MAYER: I'm not really prepared to
22 speculate on the future to that degree, but I
23 would say that the reason we're controlling
24 sediments in the upland projects is to prevent the
25 loss of those habitats that are currently in the

1 Bay in the future.

2 So if I was to walk out to the Bay, my
3 first expectation in 25 years would be that there
4 would be habitat, marine habitat present where
5 there is habitat there today.

6 In other words, we have prevented the
7 loss of that habitat in the future.

8 MR. NAFICY: So if we've managed to
9 maintain a status quo with respect to eelgrass you
10 would consider that to be a criteria, a measure of
11 success?

12 DR. MAYER: I think it's a measure of
13 success, yes.

14 MR. NAFICY: So would it be appropriate
15 to look at the extent of eelgrass habitat as one
16 of the criteria or one of the measures of the
17 success of the proposed HEP with ongoing
18 monitoring?

19 DR. MAYER: Well, I think we actually
20 have those as part of the baseline monitoring, as
21 I pointed out to you earlier. There is an outline
22 of a proposed method to actually look at the
23 aerial photography, the extent of the eelgrass in
24 the Bay over time.

25 MR. NAFICY: There's a statement in the

1 original HEP to the effect that -- it's page 27,
2 final paragraph. It says: So long as suitable
3 habitat exists the existing productive capacity of
4 the species in question is sufficient to insure
5 that those habitats will be fully occupied."

6 Does this statement depend on any
7 factors other than existence of habitat?

8 DR. MAYER: Well, the word suitable is
9 included in that line there.

10 MR. NAFICY: I understand, but --

11 DR. MAYER: Well, --

12 MR. NAFICY: -- what do you mean by
13 suitable?

14 DR. MAYER: Well, all those conditions
15 which would lend that habitat to the occupation
16 and use of it as currently it's being used in the
17 Bay.

18 MR. NAFICY: So in terms of the levels
19 of these other stressors that we talked about
20 earlier, such as heavy metals and other
21 pollutants, does that go into the definition of
22 suitable habitat?

23 DR. MAYER: That fits in the definition
24 with what the habitat currently is in Morro Bay
25 today, that are producing the species that are

1 being entrained by the power plant.

2 MR. NAFICY: So, would consider the
3 habitat in Morro Bay today, quote, "suitable
4 habitat" within the meaning of what you state
5 here?

6 DR. MAYER: What is suitable to produce
7 those species which are currently being entrained
8 by the power plant.

9 MR. NAFICY: Now, how do you know this?
10 I mean how do you know that the existing
11 reproductive capacity of the species is sufficient
12 to insure that habitat will be fully occupied?

13 DR. MAYER: Well, I'm not sure we're
14 saying that the existence of the species are going
15 to be there in a way that they are today to make
16 use of the habitat for purposes of reproduction.

17 I mean that's the definition of fully.
18 To the extent that that's being done today under
19 the current conditions.

20 MR. NAFICY: I'm sorry, I didn't
21 understand your response. My question was how do
22 we know that the current reproductive capacity is
23 sufficient, that the habitat will be fully
24 occupied?

25 I don't understand how you know that. I

1 mean is that based on a series of study, your own
2 hypothesis, how do you know that the current
3 existing reproductive capacity is sufficient to
4 fully occupy all of the habitat?

5 DR. MAYER: Because the habitat is being
6 occupied today.

7 MR. NAFICY: Are you aware of a study
8 that shows that the habitat, all different types
9 of habitat within Morro Bay is currently, quote,
10 "fully occupied?"

11 DR. MAYER: I think we're maybe -- tell
12 me your interpretation of fully; it might help
13 clear this up. Fully means that the habitat
14 currently exists today with all the conditions
15 surrounding it as you've alluded to that make up
16 the suitability of the habitat; it's being
17 utilized today.

18 MR. NAFICY: Are you familiar with that
19 concept of carrying capacity?

20 DR. MAYER: I am.

21 MR. NAFICY: Okay, I took fully occupied
22 to mean at maximum carrying capacity. Is that not
23 what you meant by it?

24 DR. MAYER: When we're speaking of Morro
25 Bay it's being occupied and utilized to the degree

1 that it's suitable for that level of production
2 today.

3 MR. NAFICY: Well, that --

4 DR. MAYER: It could be different in the
5 future. That's its current carrying capacity.

6 MR. NAFICY: Well, how do you know that?
7 How do you know what Morro Bay's carrying capacity
8 is? I mean you can't point to what is and say
9 what is, is the best of all possible worlds.

10 Is there a study that shows that Morro
11 Bay is at its carrying capacity today?

12 MR. ELLISON: Mr. Naficy, can I --
13 seriously, can I just ask you to ask one question
14 at a time, and not argue with the witness. It
15 makes for a much clearer record.

16 You just asked a question; made a
17 statement; followed it with another question.

18 HEARING OFFICER FAY: Yeah, sustained.
19 Just break it down, if you would.

20 MR. NAFICY: I think Dr. Mayer
21 understands my question. Or I can repeat it, if
22 you want me to.

23 DR. MAYER: Repeat it.

24 MR. NAFICY: How do you know that Morro
25 Bay today is at its maximum carrying capacity?

1 DR. MAYER: I don't say that anyplace.

2 MR. NAFICY: Do you --

3 DR. MAYER: You --

4 MR. NAFICY: -- agree with that
5 statement?

6 DR. MAYER: You introduced the word
7 maximum carrying capacity, I think, in your
8 question.

9 MR. NAFICY: Okay, well, maximum
10 carrying capacity is kind of redundant. Let me
11 just rephrase it.

12 Is Morro Bay -- is the habitat available
13 in Morro Bay at the limit of its carrying
14 capacity?

15 DR. MAYER: The habitat in Morro Bay is
16 being utilized today under the conditions of its
17 current suitability.

18 MR. NAFICY: Well, that's sort of a
19 tautology --

20 DR. MAYER: Well, --

21 MR. NAFICY: -- of course it is.

22 DR. MAYER: -- that may be the best
23 answer I can give you, but I don't think that's a
24 tautology. It is the habitat that's currently in
25 Morro Bay that is producing the species that are

1 being entrained.

2 MR. NAFICY: Well, that's certainly
3 true, --

4 HEARING OFFICER FAY: Mr. Naficy, let me
5 interject. Dr. Mayer, -- and this may or may not
6 be what you're getting at -- what is the basis to
7 assume that if you increase the carrying capacity
8 of the habitat, which I think is what we're
9 talking about in this hearing, that there will be
10 a relation to an increase in population of the
11 entrained species?

12 DR. MAYER: Well, I want to go back
13 because I'm breaking this down a bit. We're not
14 increasing anything. We're preserving its current
15 status of production for the future. That's for
16 the preservation programs.

17 When we're restoring in other areas such
18 as the hoary cress area of the Bay, we're
19 converting something that isn't currently
20 producing anything for the marine environment back
21 into the Morro Bay marine system.

22 MR. NAFICY: That wasn't really --

23 DR. MAYER: Is that --

24 HEARING OFFICER FAY: Okay. And to the
25 extent that some of these are restoration

1 projects, and they increase the carrying capacity
2 of the habitat, what's the basis for the belief
3 that there's a relationship between that and an
4 increase in entrained species?

5 DR. MAYER: Okay. The reasoning behind
6 this is -- and I'll use the hoary cress project as
7 an example -- where we're converting what is
8 currently upland or terrestrial habitat back to a
9 relation which will provide for the establishment
10 of salicornia marsh, salt marsh.

11 And its location, both, you know, east
12 and west, north and south, whatever the directions
13 are appropriate out there, to other salicornia
14 marsh that's already in place, and the fact that
15 there was historically salicornia marsh at that
16 location, we would believe on that basis that it
17 would restore as that kind of vegetation and
18 habitat with its accompanying species that would
19 recruit in from the neighboring -- from its
20 borders of that restored area.

21 And that process, you know, is something
22 we would not only expect, but it's been studied
23 and identified in other areas where habitat open
24 space has been created, it's most reasonably and
25 frequently occupied by the species immediately

1 north and south of it.

2 HEARING OFFICER FAY: Okay, thank you.

3 I'm sorry to interrupt you. You've triggered a
4 fascinating thought on my part, and that's why I
5 had to interject.

6 MR. NAFICY: And it gave me enough time
7 to rethink and ask my question in a different way.

8 Would you agree with the statement that
9 habitat is the main limiting factor in the
10 productivity of Morro Bay?

11 DR. MAYER: What kind of productivity
12 are you talking about?

13 MR. NAFICY: Larval productivity.

14 DR. MAYER: Larval fish?

15 MR. NAFICY: Let's take larval fish; and
16 then the same question about crabs.

17 DR. MAYER: I don't know that we know
18 that any one factor is the limiting factor in the
19 productivity of Morro Bay in terms of -- that's
20 why I'm trying to ask the question -- in terms of
21 adult fish or juvenile fish.

22 MR. NAFICY: Well, actually I'm
23 interested in your answer to both of those
24 questions, as well.

25 Let's take adult fish.

1 DR. MAYER: Right. What I want to do is
2 refer to testimony that we have in the marine
3 biological portion of this hearing where we look
4 at population models, and based on that have
5 concluded that the contribution of larval density,
6 or the number of larvae in the Bay is unlikely to
7 affect the adult populations if that's our measure
8 of productivity.

9 MR. NAFICY: I'm not sure that really
10 answers my question. The question really was is
11 availability of habitat a limiting factor. I
12 asked for larval productivity, but now I want to
13 ask about the number of adult fish.

14 Is habitat availability the major
15 limiting factor for adult fish in Morro Bay?

16 DR. MAYER: The loss of habitat which
17 we're talking about preserving would be very
18 limiting. If you didn't have the habitat and the
19 Bay filled in there wouldn't be habitat for either
20 larval fish or adult fish.

21 MR. NAFICY: But I mean right now, as it
22 stands today, if we were to look at the adult fish
23 in Morro Bay, are they being limited by
24 availability of --

25 DR. MAYER: I don't know that. I don't

1 know that.

2 MR. NAFICY: Do you know the answer to
3 that question for larvae? Whether the number of
4 larvae in the Bay is being limited by the
5 availability of habitat?

6 DR. MAYER: I don't know that.

7 MR. NAFICY: So would you have any
8 reason to believe that there are greater number of
9 larvae in Morro Bay than the habitat can actually
10 support?

11 DR. MAYER: That's a possibility. I
12 don't know that.

13 MR. NAFICY: All right. Sorry, it's
14 going to take me just a second to make sure I
15 didn't miss anything.

16 (Pause.)

17 MR. NAFICY: I guess this is a question
18 for the legal staff. There was a presentation
19 about the legal context for this proposed HEP; and
20 there was a definition provided of the legal nexus
21 between -- and what is the definition of BTA.

22 Do you recall that?

23 MS. ROSEGAY: Yes, I do.

24 MR. NAFICY: Okay. Is it your
25 understanding that the diversity and abundance of

1 fish and invertebrate species is a measure of
2 whether any particular mitigation measure is BTA?

3 MS. ROSEGAY: No. I believe the
4 appropriate standard for an appropriate mitigation
5 program or restoration program or HEP or whatever
6 you want to call it is that the mitigation
7 measures maintain fish and shellfish at comparable
8 or substantially similar levels.

9 And that's set forth in the EPA's
10 proposed phase II rules.

11 MR. NAFICY: But I guess my question is
12 if, within that definition, you believe that the
13 diversity of the fish community is captured by
14 that definition, or if it's essentially referring
15 to biomass.

16 MS. ROSEGAY: I'm not sure what you're
17 getting at. Biomass inherently involves some
18 degree of diversity.

19 MR. NAFICY: I'm wrapping up here. In
20 preparing this habitat enhancement plan, did
21 anyone explore the possibility of finding
22 alternative fundings for some or all of the
23 projects that are being proposed? Or just for the
24 TMDL project in general? Was that something that
25 was explored at all?

1 MR. CAMPBELL: We've had the opportunity
2 to talk with -- you've heard the testimony of the
3 Regional Board today in terms of the availability
4 funding. They've indicated that alternative
5 funding is hard to come by.

6 We talked to the Corps of Engineers
7 about alternative funding. They indicated that
8 funding from Duke would provide the opportunity to
9 potentially obtain matching funding.

10 We talked to Mike Multari at the Morro
11 Bay NEP and he indicated that funding is becoming
12 more difficult to obtain for these kinds of
13 projects.

14 And the fact is that this is a
15 substantial effort that's going to be required in
16 order to be able to restore the Bay. And I think
17 I haven't heard anybody, any of the resource
18 managers or the Corps of Engineers indicate that
19 there's sufficient money out there in order to be
20 able to do the project.

21 MR. NAFICY: I don't have anything
22 further.

23 HEARING OFFICER FAY: Okay. Thank you.
24 Mr. Ellison, do you want to get started on
25 recross, keeping in mind that close to 5:00 we'll

1 be taking public comment.

2 MR. ELLISON: Whatever you prefer. If
3 you want to go to --

4 HEARING OFFICER FAY: Redirect, I'm
5 sorry.

6 MR. ELLISON: I thought I had a chance
7 to cross my own witnesses.

8 HEARING OFFICER FAY: Why don't you get
9 started and we'll give it, you know, five or ten
10 minutes. And then we'll start taking public
11 comment.

12 MR. ELLISON: That's fine.

13 REDIRECT EXAMINATION

14 BY MR. ELLISON:

15 Q Let me just address these to Mr.
16 Johnson; you can decide who's appropriate for
17 them.

18 The panel was asked questions by the
19 attorney for staff, Ms. Holmes, regarding the
20 issue of the valuability to gobies of mud flat and
21 eelgrass. And I recall Dr. Mayer saying that both
22 mud flat and eelgrass are valuable to gobies.

23 My question is what is the basis then,
24 what is the value in Duke's HEP of the one project
25 that would convert mud flat to eelgrass habitat?

1 DR. MAYER: The answer in my opinion of
2 why we would encourage, and in fact as we've heard
3 from many other resource management agencies, the
4 growth and the extent of eelgrass as a habitat is
5 not specifically related to how does it benefit
6 gobies.

7 In fact, we find that there's a species
8 of goby that actually tends to prefer eelgrass
9 habitat, shadow gobies, compared to the arrow
10 gobies.

11 So I'm not sure that there's any valid
12 comparison of the goby benefit. But the value of
13 eelgrass compared to mud flat is in its structure.
14 It provides cover for many of the young fish,
15 particularly we've had recent publications on the
16 National Marine Fisheries Service surveys and
17 findings of eelgrass along the coast. They've
18 been actually very pleasantly surprised, I guess
19 is the right word, or even amazed that the
20 eelgrass provides so much cover for rockfish,
21 juvenile and young rockfish coming in from the
22 ocean coastal areas.

23 It has value -- I guess my point,
24 without being detailed about the answer, is that
25 it has value to many other service streams as

1 compared to a mud flat.

2 And more importantly, and maybe the most
3 important to the Bay system, itself, is that it
4 provides a higher level of production, primary
5 production, simply because of a larger amount of
6 green surface that's represented by the eelgrass
7 bed, including its epiphytes.

8 MR. ELLISON: Is it not also the case
9 that even assuming for the sake of argument that
10 mud flat and eelgrass were equally valuable, that
11 the progression of habitats as they are -- as
12 sediment flows into the Bay, is such that eelgrass
13 is one step further removed from becoming
14 nonsuitable habitat than mud flat would be?

15 DR. MAYER: Is there a safety assurance
16 in having eelgrass as opposed to a mud flat which
17 might more sooner go to an eelgrass habitat or
18 high marsh. That would be correct.

19 MR. ELLISON: Dr. Campbell, you were
20 asked some questions by Mr. Naficy regarding a
21 comparison of the ages, weights and numbers on the
22 debit side of your analysis to information on the
23 ages, weights and numbers on the credit side. Do
24 you recall that?

25 MR. CAMPBELL: Yes.

1 MR. ELLISON: Can you explain whether
2 it's important to have the information on ages,
3 weights and numbers on the credit side of the
4 calculation to perform a legitimate analysis?

5 MR. CAMPBELL: I don't believe that it
6 is. I believe that what occurs on the debit side
7 is, since we are restoring the same habitat that
8 has been present in the Bay, we can fully expect
9 the same suite of fish and biomass to be created
10 as was being -- is being entrained.

11 When I say that I'm not saying larvae
12 for larvae, I'm just saying the same types of
13 things that are being exported will be -- the same
14 kinds of things will be put into the system by the
15 habitat.

16 MR. ELLISON: Is it fair to say that
17 because of the variety of species involved that on
18 the debit side of the equation the ages, weights
19 and number of species are much more important to
20 the HEA calculation than at least for Morro Bay
21 than would be the case on the credit side?

22 MR. CAMPBELL: It was important in order
23 to determine what their average length was. And
24 we actually didn't do average length, we did their
25 most -- the greatest possible length that they

1 would be at that age. And then greatest possible
2 weight that they would be at that age.

3 So it was important in being able to do
4 the debit calculation in order to determine what
5 the number of kilograms being exported was on an
6 annual basis.

7 MR. ELLISON: But the same information
8 was not particularly important on the credit side,
9 is that what I understand you to be saying?

10 MR. CAMPBELL: That's correct.

11 MR. ELLISON: That's all I have, thank
12 you.

13 HEARING OFFICER FAY: Congratulations,
14 Mr. Ellison.

15 (Laughter.)

16 HEARING OFFICER FAY: That's excellent.
17 Right up there with Ms. Holmes' brevity.

18 Thank you. So where we are, for those
19 who are keeping score, is that Duke has concluded
20 its redirect. And tomorrow morning we will begin
21 with the recross within the scope of the redirect
22 by the other parties asking questions of Duke.

23 We've concluded taking evidence for
24 today. And anybody that is not concerned about
25 the evidentiary formal evidence may leave without

1 fearing that there will be more evidence taken,
2 formal evidence taken later.

3 We do want to take public comment,
4 however, and we promised that we'd do so at about
5 5:00.

6 MR. ELLISON: Mr. Fay, can I just ask
7 for the indulgence of the Committee on one point?
8 I don't know how much recross -- there certainly
9 wasn't a lot of redirect -- how much recross there
10 is by the parties. We do have some witnesses that
11 could leave if we could just finish with the panel
12 today.

13 So, --

14 HEARING OFFICER FAY: Fair enough. Can
15 we get a time estimate by the parties?

16 MS. HOLMES: I have one question.

17 HEARING OFFICER FAY: One question?

18 MS. HOLMES: Yes.

19 HEARING OFFICER FAY: Mr. Naficy?

20 MR. NAFICY: I don't have a question.

21 HEARING OFFICER FAY: Oh, all right.

22 Well, with the public's indulgence we'd like to do
23 that, and that may free up a lot of people's time
24 for tomorrow. And we'll be able to move to the
25 next step.

1 So, Ms. Holmes, why don't you go ahead
2 and ask your question.

3 MS. HOLMES: Thank you.

4 RE CROSS-EXAMINATION

5 BY MS. HOLMES:

6 Q It's in relationship to Mr. Ellison's
7 question about why do a mud flat to eelgrass
8 conversion if gobies benefit from mud flats as
9 well as eelgrass.

10 And that is, it's a very simple
11 question. Do blennies benefit from the conversion
12 of mud flats to eelgrass?

13 DR. MAYER: I'm using opinion here, but
14 not as directly. But the eelgrass, one of the
15 benefits of it, it actually produces more primary
16 production biomass back into the system.

17 All of that creates foodstuff that goes
18 down into the blenny habitat.

19 MS. HOLMES: But the eelgrass is not
20 blenny habitat, is it?

21 DR. MAYER: The eelgrass is not, as we
22 know it, blenny habitat, but the changing or the
23 presence of eelgrass does create a better habitat
24 for the blenny in terms of the food supply created
25 from that habitat.

1 MS. HOLMES: Indirectly?

2 DR. MAYER: Well, I mean it's indirect
3 and it's not right there at that same spot on the
4 ground. The food created is in the flow of
5 currents that are carrying it towards the blenny
6 habitat which is closer to the harbor entrance.

7 MS. HOLMES: So your testimony is that
8 the conversion of mud flats to eelgrass will
9 create more food in the Bay for other species?

10 DR. MAYER: The presence of eelgrass in
11 the Bay will create more food for other species.

12 MS. HOLMES: And then the species that
13 will take advantage of that all the way down to
14 the mouth of the Bay?

15 DR. MAYER: Could be that far down,
16 sure.

17 MS. HOLMES: Thank you.

18 HEARING OFFICER FAY: Okay. Mr.
19 Ellison, I guess you can excuse those of your
20 panel that -- and nothing further from you, huh?
21 All right, good.

22 Then we'd like to move apace to public
23 comment. And I'd like to ask anybody that does
24 want to make a comment to please limit your
25 remarks to no more than three minutes. We're

1 forced to do that with the time available.

2 Please come up to the microphone and
3 state your name, and the community in which you
4 live.

5 Mr. Pryor.

6 MR. PRYOR: On behalf of Ms. Mendonca,
7 she was involved in an auto accident either today
8 or yesterday. She's fine. But I don't expect her
9 to be here tomorrow.

10 I have run out of blue cards, so I'm
11 going to have to come up with some other method
12 for tomorrow.

13 HEARING OFFICER FAY: Okay, we will
14 accept other colored cards.

15 (Laughter.)

16 HEARING OFFICER FAY: We're very
17 flexible.

18 MR. PRYOR: But she labeled it as
19 cheaper.

20 (Laughter.)

21 PRESIDING MEMBER KEESE: Yes, I note
22 here on the cards that of the 17 cards that we've
23 received here, only two or three of the people
24 checked the box that says they want to testify.

25 We're going to assume that everybody

1 that sent a card up here planning to say
2 something. So if you hadn't planned to say
3 anything, don't feel obligated. But we'll call
4 you by order.

5 HEARING OFFICER FAY: We'll start with
6 John Barta, Planning Commissioner, Morro Bay.

7 MR. BARTA: I'd like to thank the
8 Committee for letting me come due to the time
9 constraints, but I am speaking as a private
10 citizen here.

11 I think you've all heard today the
12 benefits that a habitat enhancement plan will
13 have, and I think a logical direction to go has
14 been shown.

15 I do want to address one very narrow
16 issue, and that is the issue of if Duke goes
17 forward and is required to pay money for habitat
18 enhancement plan, of leaving open the possibility
19 that better technology will be found for intakes.

20 And that if that better technology is
21 found at some time down the road, five years, ten
22 years down the road, that they could take
23 advantage of that technology, and therefore part
24 of what they would be mitigating for would be
25 relieved.

1 So it would be nice if there was some
2 kind of a back door in any order so that if Duke
3 does find a better way to do it, the technology is
4 there, that they will have the opportunity to take
5 advantage of that technology.

6 We talked about aquatic filter barriers
7 in the past, but there may be other technologies,
8 better technologies that come along. And if those
9 do come along, it would be nice to have a method
10 to address that issue.

11 Thank you.

12 PRESIDING MEMBER KEESE: Thank you very
13 much.

14 HEARING OFFICER FAY: Thank you. And
15 I'll just remind everybody that the Water Board's
16 process, the NPDES permit, is renewed every five
17 years. So that's entirely consistent with the
18 last recommendation in that the Water Board can
19 take a look at intake mitigation technology in the
20 future.

21 Deborah Johnston from California
22 Department of Fish and Game.

23 MS. JOHNSTON: Good evening,
24 Commissioners. My name is Deborah Johnston
25 representing the Department of Fish and Game.

1 And although the Department is not a
2 permitting agency in these portions of the
3 proceeding, we are the trustee for the state
4 resources that are being considered at today's
5 discussion.

6 The habitat enhancement program is
7 primarily designed to mitigate for entrainment
8 losses, for funding of representative projects,
9 many of which focus on sediment management.

10 The entrainment impacts have been
11 documented to eggs, larvae, juveniles and adult
12 aquatic species. It's been stated that the power
13 plant does not result in sedimentation to Morro
14 Bay. And thereby the mitigation proposed
15 represents offsite and out-of-kind mitigation.
16 This is primarily in reference to the TMDL that
17 has been proposed to be funded.

18 It's been presented that the Bay is
19 experiencing a natural rate of filling. As Mr.
20 Thomas showed that in 1890 there was approximately
21 1300 acres of open water existed, compared to
22 approximately 500 acres in 1990. And
23 approximately a 25 percent loss of inner tidal
24 area over the past 100 years.

25 Based on the model results that PWA had

1 put in, they characterize the volume and habitat
2 to be lost due to sedimentation has been
3 characterized as occurring at an exponential rate.
4 And that if nothing is done there is significant
5 habitat that will be lost.

6 However as stated in 1890 it was
7 approximately 1300 acres of open water, as
8 compared to the 2300 acres that are presented in
9 the PWA 2002 document.

10 PG&E, 1973, in their Morro Bay Power
11 Plant project, documents 1400 acres of mud flat
12 habitat at mean low lower water. Again, the PWA
13 report, 2002, reports 1450 acres of mud flat mean
14 lower low water.

15 Eelgrass habitat has gone from a
16 historic low of 50 acres, 1997. It's well over
17 200 acres in 2001. And it's rapidly approaching
18 the 300 acres that have been documented in 1960.

19 The only way this can occur is that the
20 bottom elevation is decreasing to allow an
21 expansion of this habitat from its habitat level
22 of 1997.

23 One of the representative projects that
24 is being proposed, removal of hoary cress. They
25 are proposing to lower the elevation to marsh by

1 removing the build up of excess sedimentation.

2 There are few of the commercial
3 entrained species, such as Dungeness crab,
4 rockfish, cabezon; they would not benefit by the
5 creation of this habitat. The entrained adult
6 calanoid copepods also would not benefit by the
7 creation of this habitat.

8 So a lot of these projects may not
9 benefit. Again, a nexus between the HEP and the
10 entrained impacts.

11 I also believe that members of the panel
12 from Duke stated that they thought very little
13 permitting would be required for these permitted
14 representative projects. And I do believe that
15 many of them do come under the Department's
16 purview for permitting.

17 Thank you.

18 HEARING OFFICER FAY: Thank you. Jack
19 McCurdy.

20 MR. McCURDY: Good afternoon, members of
21 the Commission. This hearing, of course, is about
22 evidence, and that's what I want to address. Only
23 it's evidence of a different kind.

24 We know the Commissioners and staff want
25 to hear what the public thinks about the issues

1 before you. The Coastal Alliance on Plant
2 Expansion is an intervenor in the proceedings, and
3 as such has the right to testify, present evidence
4 and cross-examine witnesses, as we have done
5 extensively since the Duke application was filed
6 on October 23, 2000.

7 The public also has a right to make
8 informal comments, but sorting out the evidence of
9 public opinion on the Duke project is not easy.
10 If the Commission takes into account what Morro
11 Bay residents, or the broader community throughout
12 the County, feel about the Duke project, as surely
13 it will in some measure, the Commissioners should
14 be aware of the evidence of those opinions that
15 has been portrayed to you.

16 Duke and City officials have repeatedly
17 claimed that the community supports the new plant
18 as proposed by Duke. That is with continued
19 diversion of hundreds of millions of gallons of
20 water a day from the estuary and the destruction
21 of marine life contained therein.

22 A good example is the quote from Mayor
23 Roger Anderson in a Duke brief to you which cited,
24 quote, "The strong stance they (voters) took in
25 favor of the modernization project" end quote.

1 He referred to an advisory measure
2 placed on the municipal ballot in November 2000.
3 The measure stated: Shall the City Council of
4 Morro Bay support a single phase project for the
5 replacement and demolition of the existing Morro
6 Bay Power Plant (estimated to be completed by
7 2007) if the project complies with all regulatory
8 laws, ordinances, regulations and standards."

9 The CEC Staff, the Coastal Commission
10 Staff, the California Department of Fish and Game,
11 the National Marine Fisheries Service have
12 concluded that the plant proposed by Duke would
13 not comply with all regulatory laws, ordinances,
14 regulations and standards.

15 Therefore, there are no grounds for
16 claiming that the voters have advised the City
17 Council to support the project. And no evidence
18 that the community supports it. In fact, many
19 residents of Morro Bay and the County oppose
20 continued pumping of water from the estuary and
21 killing of fish. And you see many of them here,
22 and many more have signed petitions calling on you
23 to protect the estuary by prohibiting once-through
24 cooling.

25 Environmental protection under the law

1 is what voters believed they were requiring when
2 they voted for the advisory measure on the ballot.
3 And to claim that they support the project, absent
4 that qualification, is a complete
5 misrepresentation of public sentiment about a new
6 plant in Morro Bay.

7 Thank you.

8 PRESIDING MEMBER KEESE: Thank you.

9 HEARING OFFICER FAY: Thank you. I
10 understand Morro Bay Council Member Colby Crotzer
11 is here.

12 MR. CROTZER: Thank you, and welcome to
13 town, again. Please excuse my articulation; I'm
14 fresh out of the dentist chair and --

15 (Laughter.)

16 MR. CROTZER: -- will again apologize
17 beforehand. I understand that some with sodium
18 pentothal tend to be frank, overly frank, and
19 truthful, so --

20 (Laughter.)

21 MR. CROTZER: -- my comments, I will be
22 brief. The project proponents are coming forward
23 with a habitat enhancement program. It's
24 difficult for me to say that, even if my lip were
25 sound and healthy, because I don't believe it is

1 such. I don't think the documentation indicates
2 that it is.

3 The assessment of it is much too short
4 term and under-funded. The assumption that, in
5 fact, there is some relationship between this
6 proposed mitigation for the impacts to our estuary
7 are vacant from my analysis, being lay, but being
8 one that's a representative of the people here in
9 Morro Bay.

10 I can assure you that the previous
11 speaker's assertion that the vote in favor of this
12 project was only if all environmental laws were
13 met, if all LORS were observed, and in fact, CEQA
14 and many other guidelines that we have in the
15 State of California to protect the environment
16 would indicate that this is certainly unproven.
17 And nothing more than an assertion on the part of
18 the project proponents that would claim that
19 dredging and other major earth-moving efforts in
20 our estuary, which is fragile, very little
21 understood scientifically.

22 And only recently do we have evidence of
23 previous experiments, I would call them still
24 experiments because the data certainly is not in.
25 There hasn't been enough time to tell if

1 disturbing of soils in such a massive way are
2 appropriate, or even in any way positive.

3 I have applied myself for a long time to
4 the study of whether reducing sedimentation
5 through dredging projects can, in fact, be carried
6 out with an environmentally sensitive approach.
7 The answers are not clear to me on that. But I
8 certainly know that any attempt to improve the
9 ecology of the Bay and the physical structure of
10 the Bay would require lengthy analysis and
11 documented proof, and a long-time assessment of
12 the effects and the impacts of such earth-moving
13 efforts in order to move forward.

14 Whereas you now have the responsibility
15 for doing that without the discretion of those
16 other agencies. You do have the input, however,
17 and you have the input of your own staff. And it
18 clearly points to the fact this is a poor idea
19 without any nexus to the project mitigation.

20 In fact, if successful, it would, as
21 purported, increase the productivity of the life
22 forms in the Bay. That's again, and I'm only lay,
23 but in my logic, I think, holds. It would produce
24 more life forms, thus more would be sucked up and
25 embroiled in this bouillabaisse that is the

1 product of the once-through cooling.

2 It's insidious, it's mechanical, it is
3 not natural. And I hope that you can see clear to
4 protect our estuary from that.

5 Many people in my community have worked
6 many decades to protect this estuary. And it
7 would not be fair, I think, for the project
8 proponent to come forward, and with the aid of
9 your Commission, put all that at risk.

10 Thank you.

11 PRESIDING MEMBER KEESE: Thank you.

12 HEARING OFFICER FAY: Thank you for your
13 comments. Bill Newman.

14 MR. NEWMAN: Coming after Colby with his
15 problem, --

16 (Laughter.)

17 MR. NEWMAN: Bill Newman, resident of
18 Morro Bay. My bona fides for presuming to stand
19 before you are that since 1962 I've lived here and
20 seen the encroachment into the Bay below Twin
21 Bridges increase so that there's all that water
22 cress area and the extensive salt marsh that has
23 been growing and growing. And those are threats
24 to the Bay.

25 And I can testify to that in one

1 lifetime, which certainly exemplifies the
2 acceleration of such things beyond the natural
3 course of things.

4 I was President of the Friends of the
5 Estuary for many years and highly involved in
6 getting us into the state estuary program,
7 national estuary program. And leadership to
8 getting our management plan with the 61 points.

9 The primary concern is the
10 sedimentation. Oh, I should admit that I served
11 on the Regional Water Quality Board, also, in the
12 past. But I have no special information about
13 them or from them in the last six years.

14 Comments made about the nexus, and I
15 think it seems to me pretty obvious there's some
16 harm being done to the critters in the Bay. And
17 so why not do something to alleviate, to help the
18 critters of the Bay. It just seems one for the
19 other. I don't get the idea of not having a
20 nexus.

21 But my main point is the monitoring part
22 of the program. You have the CEC's supplement to
23 the final staff assessment part three, which goes
24 quite a bit into the need for further funds for
25 the assessment and monitoring of the programs.

1 I'm out there at 4:00 in the morning
2 taking readings to get the health of the Bay down
3 to some kind of a measurement. So my heart's in
4 it, too. But I hope that you will take seriously
5 the assessment of amounts of money that are
6 recommended by the Duke Staff.

7 Thank you.

8 HEARING OFFICER FAY: Thank you.

9 PRESIDING MEMBER KEESE: Thank you.

10 HEARING OFFICER FAY: Peter Wagner.

11 MR. WAGNER: Good evening, I'm Peter
12 Wagner. I'm a Morro Bay resident. And I'm here
13 for the Santa Lucia Chapter of the Sierra Club and
14 its 2000 members.

15 I have prepared a letter to submit, but
16 I want to rewrite in light of what I've heard
17 today, particularly this morning, although our
18 principal conclusions are not changed. I'd just
19 like to read one or two excerpts from it, if I
20 may.

21 We conclude that Duke has not provided
22 justification for habitat enhancement measures
23 proposed to compensate for the 17 to 33 percent
24 mortality caused by entrainment.

25 At the heart of Duke's proposal is the

1 assumption that increasing habitat or, more
2 accurately, decreasing the rate of loss of habitat
3 due to sedimentation, can compensate for mortality
4 at the plant.

5 Habitat enhancement works only if the
6 larval populations are limited by the size of the
7 supporting ecosystem. This may or may not be
8 true, it simply hasn't been shown.

9 It is also possible, for example, that
10 the size of the system is not limiting, but the
11 system is under-populated because of mortality
12 induced by, among other sources, the power plant,
13 itself.

14 We agree with the CEC Staff that, quote,
15 "reducing sedimentation does not create habitat.
16 It slows sedimentation effects which occur and
17 modify habitats in the estuary. The power plant
18 is not known to cause sedimentation."

19 Habitat restoration projects cited by
20 Duke appear to have been designed to compensate
21 for habitat loss, not for point source mortality.
22 You could think of ways to compensate for point
23 source mortality. For example, suppose you
24 generated a hatchery that produced as many larvae
25 as the plant is killing. That would be a direct

1 attack on the problem.

2 We do not accept biomass as the sole
3 indicator of the status of larval populations
4 because biomass says nothing about community
5 structure or diversity. In fact, it might be
6 argued that community structure has been shifted
7 by a half century of selective cropping by the
8 power plant. It might be much different had the
9 power plant not existed.

10 Duke's proposed projects are merely
11 representative -- we heard a lot about that
12 today -- rather than firm commitments. The
13 project descriptions, as well as the monitoring
14 methods intended to gauge their effectiveness and
15 counter-measures if projects are found not to
16 succeed, are simply too vague and too tentative to
17 permit evaluation. We certainly agree with the
18 staff on this.

19 Further, we agree with the staff's
20 assertion that a maximum water consumption rate of
21 475 mgd should be considered for the new plant.
22 Rather than Duke's offer of 370 mgd on an annual
23 average. Demand rather than biological
24 considerations would undoubtedly dictate when Duke
25 chose to operate at maximum power at 475 mgd.

1 These high-flow days might occur, for
2 example, at the peak spawning season for a given
3 base species, and could be disproportionately
4 harmful.

5 HEARING OFFICER FAY: Mr. Wagner, can
6 you wrap up? It's been about three minutes.

7 MR. WAGNER: Yes, of course. We believe
8 that Duke is not attacking the problem head-on.
9 That the cure does not fit the disease. That you
10 don't fix a broken arm with chemotherapy.

11 Thank you.

12 HEARING OFFICER FAY: Okay. Thank you
13 very much. Nelson Sullivan.

14 MR. SULLIVAN: Good evening. I'm Nelson
15 Sullivan and I've got a troop here that's going to
16 help me out. Coleen here, and her son, Eric, a
17 fifth grader. We have Nick, a CalPoly student.
18 We have Maureen, a Morro Bay High School student.
19 And Maya and her future child.

20 We would like to present a petition
21 signed by a sample of those wanting protection of
22 the Morro Bay National Estuary. The petition
23 urges you, the Energy Commission, to prohibit --
24 this is a quote, "prohibit diversion of water from
25 the estuary if a new plant is approved. And also

1 impose strict limits on air emissions from the
2 plant to safeguard public health." Unquote.

3 There are over 1000 signatures here.
4 Aside from these petition signatures, you have
5 received letters from across the state and from
6 across the country from people asking you to
7 protect the Morro Bay National Estuary.

8 This shows that the issue of the use of
9 the estuary is not only a major local concern, but
10 is a concern of residents throughout California
11 and throughout the United States.

12 As you may have noticed, we are
13 presenting these petition signatures as a multi-
14 generation group, showing that the protection of
15 the estuary is a multi-generation concern. Even
16 the future generation is represented here. Look
17 at Maya.

18 (Laughter.)

19 MR. SULLIVAN: Thank you.

20 HEARING OFFICER FAY: Thank you.

21 MS. JOHNSON: I'd also like to mention
22 that instead of applauding when a speaker comes up
23 and says something that we agree with, Marina is a
24 Morro Bay High School student and she did the art
25 work on this placard. She's a future artist. And

1 so we're holding up these cards instead of
2 applause.

3 PRESIDING MEMBER KEESE: Great, thank
4 you.

5 HEARING OFFICER FAY: Thank you. And
6 could you state your name, please?

7 MS. JOHNSON: Coleen Johnson.

8 HEARING OFFICER FAY: Thank you. All
9 right, we see lots of cards raised. Thank you.

10 Mandy Davis.

11 MS. DAVIS: Hi. Once again, I would
12 like to welcome you. As has been my habit
13 beforehand, I'm on being particularly eloquent. I
14 would like to read you something that is very
15 applicable that has been written or spoken by
16 somebody that is really quite eloquent. And I
17 would like to do the same tonight.

18 The man who sat on the ground meditating
19 on life and its meaning, accepting the kinship of
20 all creatures, and acknowledging unity with the
21 universe of things was infusing into his being the
22 true essence of civilization.

23 And you might ask why this quote is
24 applicable to these hearings and habitat
25 enhancement. It has everything to do with these

1 hearings.

2 If we were being truly civilized human
3 beings we wouldn't even be having these hearings.
4 Duke Energy would have submitted the permit in an
5 environmentally appropriate way. We wouldn't even
6 be talking about habitat enhancement.

7 But since we are, I'll make it
8 applicable to that. If we were truly civilized
9 human beings we would be addressing what Mr. Keese
10 was referring to, which was allowing the earth to
11 heal herself.

12 See, very naturally within a natural
13 system and ecosystem will maintain balance or will
14 come to that point. But, because we have an
15 unnatural entry into a natural system we have an
16 unnatural predator. And that unnatural predator
17 happens to be Duke Energy, their particular
18 cooling system, which is wet cooling.

19 And within a natural system, you know,
20 the predator, if there isn't enough prey, they die
21 off. It's a very natural system. We happen to
22 have a predator that is outside of that. And that
23 if we do not eliminate that predator, there is no
24 way this system is going to come back to its
25 natural state. So I support what Mr. Keese has

1 said is important.

2 If we were civilized human beings we
3 would, in reality, look at what Mike has said that
4 we should look at. We should look into the future
5 200 years and do what's best for this estuary, for
6 humanity, for the earth within that timeframe.

7 If, Mike -- I really honestly believe if
8 Mike was being really very honest with you and
9 outside of his special interest, he would say that
10 if we were to look at the earth in 200 years, the
11 absolute best thing for us to do as civilized
12 human beings would be to do the habitat
13 enhancement and to eliminate the source of the
14 killing.

15 HEARING OFFICER FAY: Thank you, Ms.
16 Davis.

17 MS. DAVIS: Okay, so let's --

18 HEARING OFFICER FAY: Sorry, it's been
19 over three minutes --

20 MS. DAVIS: Okay.

21 HEARING OFFICER FAY: -- and if I give
22 you more time, there won't be time for your
23 neighbors.

24 MS. DAVIS: All right. So let's be
25 civilized and --

1 HEARING OFFICER FAY: All right, thank
2 you very much. I hate to cut people off, but we
3 do want to be sure everybody has a chance to
4 address is.

5 Jack Ellwanger of Carmel Valley.

6 MR. ELLWANGER: There are incalculable
7 costs in changing the environment, and when we
8 lose big trees, for example, we all lose
9 something, knowing that you could go see them was
10 something you lose terribly.

11 And we're in a change mode now.
12 There'll be more protection for our natural
13 resources. It is accelerated with people
14 connecting with the seas through whale watching.
15 And now there are large ocean areas that used to
16 be seen as limitless supplies of fish, but are not
17 marine protected areas.

18 And now we need to protect coastal
19 sloughs because we used to fill them up and
20 channel them, put harbors in them so we could put
21 in power plants. Dams were built on beautiful
22 rivers to divert water for agricultural,
23 factories, and deserts.

24 We see the folly of this mistake in that
25 we have greatly damaged the fisheries. And now we

1 are learning that the few exquisite, incredibly
2 rich nature places as Morro Bay are priceless, not
3 something to be dammed up so we can provide cold
4 water for a power plant.

5 Today in the promotional literature of
6 Morro Bay you will read that the power plant is
7 the biggest employer here. The truth is if that
8 power plant was not here, you would have many more
9 jobs in and around Morro Bay in the environmental
10 business.

11 Already the truth really is most jobs in
12 and around Morro Bay are here because of
13 environmental tourism. The kayakers, the bird
14 watchers, the native plant hikers, sailing,
15 equipment outfitters and restaurant and lodging.

16 People have a conscience. Audubon was a
17 bird killer and now we praise conservation in his
18 name to celebrate his conscience. We don't
19 exterminate species for short-lived economic gain
20 anymore. We don't kill whales. But we do have
21 whale festivals and bird festivals. Looking at
22 birds and whales are two truly great businesses,
23 and they let people sleep well at night.

24 Morro Bay is a boon to the conscience.
25 It is gifted with natural treasures that ignite

1 the human wonder. We have been accustomed to
2 treating everything in California as
3 inexhaustible. But some special places like Morro
4 Bay are so rare that they are more finite as our
5 population grows.

6 The more people we have the greater the
7 natural treasure of Morro Bay grows. The next
8 generation will want to open up the spit, and the
9 inner Bay restored so the natural riches of this
10 wondrous Bay be brought back.

11 The power plants kill aquatic life.
12 Scientists know this, engineers are beginning to
13 understand this, and the Water Board, well,
14 they're mostly engineers and they don't really
15 understand it yet.

16 But you have, with this power, and the
17 responsibility of Warren Alquist, and your
18 Commission in your hands, do understand this. And
19 the public who would come here to be in this Bay
20 and kayak and see the birds know this. And it
21 daunts their enthusiasm for coming here.

22 If Morro Bay were to prohibit once-
23 through cooling, and promote its unique setting as
24 an ecological destination it would be a rich
25 place.

1 HEARING OFFICER FAY: Mr. Ellwanger, I
2 have to ask you to wrap up, please.

3 MR. ELLWANGER: Well, then I would say
4 that the cost of once-through cooling is wholly
5 disproportionate to the ecology and to the
6 business of this community and habitat enhancement
7 should be carried out by the resources of the
8 people here rather than as blood money for once-
9 through cooling.

10 Thank you.

11 HEARING OFFICER FAY: Okay. Thank you.

12 PRESIDING MEMBER KEESE: Thank you.

13 HEARING OFFICER FAY: Tom Laurie.

14 MR. LAURIE: I'm Tom Laurie. I'm
15 normally in the CAPE trenches, but I'm speaking
16 tonight as a private citizen.

17 Three brief points. Duke's 370 million
18 gallon a day annual daily cap is, in my opinion,
19 all about trifling with the definitions in CEQA.

20 The cap is totally irrelevant when it
21 comes to calculating impacts. And I've
22 demonstrated that to your staff. If, for example,
23 the modernized plant was in business in the year
24 2000, and the 316(b) demonstration was done, the
25 plant could have run ten months a year at flat-out

1 475 million gallons a day and been off for two
2 months, and the index wouldn't have changed. But
3 the annual daily cap would have been 370 million
4 gallons.

5 The second point is that the HEP
6 attempts to restore total biomass lost to once-
7 through cooling, but the impacts to total biomass
8 were not measured in the 316(b).

9 The 316(b) counted fish and crabs, and
10 assumed that the fish and crabs counted were a
11 surrogate to all larval fish and crabs. Even
12 those not studied. But the majority of Morro
13 Bay's biomass, phytoplankton and zooplankton was
14 not suited at all.

15 If you didn't quantify the impacts of
16 once-through cooling on total biomass then you
17 have no way of analyzing the effectiveness of the
18 HEP. This is not an apples-to-oranges kind of
19 scenario. I'd call it something like Martians-to-
20 Barbie Dolls or --

21 (Laughter.)

22 MR. LAURIE: -- with a disclaimer that
23 the Martians may be cute, I don't know.

24 Okay, and the ultimate irony of an HEP I
25 think has been touched on once before, is that if

1 the HEP is successful, if the HEP actually offsets
2 all the fish lost at the intakes by increasing
3 larval productivity, the estuary basically becomes
4 a fatter calf for the continued slaughter. In
5 terms of numbers of fish and crab and larvae, the
6 plant will kill more if the HEP is successful.
7 They will kill more fish and crabs.

8 Thank you.

9 HEARING OFFICER FAY: Thank you, Mr.
10 Laurie. Mr. and Mrs. John Smurda of Los Angeles.

11 MR. SMURDA: I'm John Smurda. This is
12 my wife, Genevieve. Retired teacher. We are from
13 Los Angeles. We were born and raised there,
14 native Californians.

15 Our families are deeply rooted in the
16 California history, so we care greatly about our
17 California coast. We took a plane up here this
18 morning because we feel that our California coast
19 needs to be preserved and protected.

20 We've observed and lived through the
21 evolving landscape of the greater Los Angeles
22 area. The Marina del Rey and the Ballona Creek
23 wetlands were vast spaces of birds and fish and
24 wildlife. And now the City has surrounded it and
25 filled it with pavement, businesses, condos, and

1 major stores.

2 Other than today we drive here, up the
3 coast four hours, to Morro Bay to vacation here in
4 one of the last remaining unspoiled coastal areas
5 of California. Morro Bay is one of the state's
6 last pristine unspoiled treasures except for the
7 ugly thing next door.

8 We hope -- the open space surrounding
9 the Bay and the beauty of the estuary are much
10 needed welcome sanctuary for the hectic fast pace
11 of city life. Along with thousands of other
12 Californians from the north and the east and the
13 south, we travel to Morro Bay to enjoy its
14 peacefulness and beauty.

15 We appreciate the estuary for what it
16 is, a living viable estuary. It is one of the
17 state's most valuable treasures. Its purpose is
18 to serve as a nursery for fish and such,
19 shellfish, eggs and larvae. It should not be
20 viewed as a low-cost means of cooling a power
21 plant's generators. Other technology is available
22 and should be used, particularly in this
23 situation.

24 The estuary waters, publicly owned by
25 all Californians, should not be degraded for a

1 private company's profit. With all Californians
2 and future generations in mind, we ask that you
3 please protect the future of the Morro Bay
4 National Estuary at this important time of
5 decision.

6 (Applause.)

7 MR. SMURDA: If we have time, we have a
8 one-minute clip of a motion picture, "The Great
9 Outdoors", in which Dan Ackroyd and John Candy
10 discuss the similar situation that we have here
11 right now. They are viewing a lake, and we have
12 the two divergent opinions of this view.

13 Can we roll the tape?

14 HEARING OFFICER FAY: Okay, go ahead.

15 (Movie tape viewed.)

16 MR. SMURDA: Okay. Thank you very much.

17 HEARING OFFICER FAY: Okay, thank you.

18 (Applause.)

19 HEARING OFFICER FAY: Ellen Sturtz.

20 MS. STURTZ: That's a difficult act to
21 follow. My name's Ellen Sturtz. I'm a resident
22 of Los Osos, the folks in the Back Bay.

23 I want to extend my thanks to the Energy
24 Commission and to the Coastal Alliance on Plant
25 Expansion. The Coastal Alliance volunteers have

1 outlasted, outlived many of the salaried Duke
2 people involved in this process. CAPE is still
3 here. Thank you.

4 Never have I ever seen a community group
5 so devoted. I know that CAPE's members have
6 turned their lives upside down to devote the time
7 they have to bring important issues out in this
8 process.

9 CAPE members' spirit, knowledge and
10 commitment, regardless of the decision of the
11 Commission, has made this a better process.
12 Regardless of the Commission's decision, future
13 generations will owe these people a big thanks.
14 And I thank the Coastal Alliance on Plant
15 Expansion today.

16 Recently the public has become more
17 aware of corporate governance problems, the
18 influence of corporate political contributions,
19 the manipulation of information to deceive
20 government regulators, the public, the voters.

21 I didn't need an Enron or WorldCom to
22 know this. I've seen this in my own community
23 ever since Duke has arrived.

24 There's so many questions, and yet I
25 want to pose one today as my legs shake. Why is

1 it that Duke is negotiating with the community of
2 Schenectady, New York, to purchase water from them
3 and to dispose of that water, I believe, in their
4 sewer system? Are we just local yokels here, and
5 to be taken advantage of?

6 Well, tomorrow is election day. It's my
7 understanding that convicted felons lose their
8 right to vote. What will happen to convicted
9 corporate criminals? Probably nothing. As you
10 know, Duke has been questioned regarding their
11 involvement in the manmade California energy
12 crisis. If Duke is found to be involved in
13 illegal activity, what will the State of
14 California do?

15 Unfortunately, the state will likely
16 give Duke a handshake and permits to continue to
17 do business in our state. As legal as this may
18 be, it just doesn't seem right.

19 Please do the right thing. Don't give
20 Duke permission to continue to harm our community.
21 Thank you.

22 HEARING OFFICER FAY: Thank you.

23 (Applause.)

24 HEARING OFFICER FAY: Coleen and Eric
25 Johnson. Ms. Johnson, you've spoken already,

1 haven't you? I think you were up here before.

2 MS. JOHNSON: I just said my name.

3 Nelson did all the speaking.

4 My name is Coleen Johnson. I'm a
5 dietitian at a local hospital. I'm a 12-year
6 resident of Morro Bay, and a 21-year resident of
7 San Luis Obispo County, and a fifth generation
8 Californian.

9 MASTER JOHNSON: And my name is Eric
10 Johnson. And I'm a student at Old Mission School.

11 MS. JOHNSON: This evening we would like
12 to address Duke Energy's theoretical hypothesis of
13 the existence of a nexus between habitat
14 restoration projects and fish, egg and larval loss
15 caused by impingement and entrainment of a new
16 1200 megawatt power plant on the Morro Bay
17 National Estuary.

18 Duke hypothesizes that creating a
19 certain type of habitat for some of the marine
20 life in the estuary will result in appropriate
21 productivity to the degree needed to compensate
22 for the killing of fish, eggs and larvae by a new
23 power plant.

24 Their hypothesis does not reflect the
25 actual ecosystem and the losses of the 75-plus

1 particular species being killed. The balance of
2 species would most certainly be altered.

3 Duke does not address the fact that many
4 species that suffered losses through entrainment
5 will not benefit from habitat enhancement.
6 Obviously some species would benefit from created
7 habitat more than other species would.

8 Building a habitat to promote a few of
9 the species being killed is not suitable
10 replacement for an entire mature ecosystem.

11 Additionally, sedimentation education
12 cannot effectively mitigate for the extremely high
13 number of fish and larvae killed. The
14 productivity of a small area of habitat cannot
15 truly replace the losses of several billion eggs,
16 larvae and adult fish every year.

17 Habitat enhancement and sedimentation
18 reduction in the estuary, compared to the
19 entrainment of marine life by a new power plant,
20 is like comparing apples to oranges. Duke's
21 hypothesis would be similar to a situation I
22 theoretically could encounter as a dietitian.

23 Imagine the estuary as a patient in a
24 cardiac unit. The power plant is a cigarette at
25 its mouth, and it also has sedimentation like

1 cholesterol clogging its arteries. You are the
2 cardiologist overseeing the treatment of the
3 patient.

4 Also imagine that in this particular
5 hospital there is a respiratory therapist by the
6 name of Duke who claims to be a respiratory
7 therapist with the patient's best interests in
8 mind, but also owns several thousand shares of
9 stock in Philip Morris, the tobacco giant.

10 He comes to you asking you not to advise
11 the patient to quit smoking to prevent him from
12 dying, but Duke instead suggests that he would
13 like to donate money to the national cholesterol
14 education program that informs people how to
15 reduce their cholesterol level to prevent their
16 arteries from clogging.

17 (Laughter.)

18 MS. JOHNSON: Allowing the patient to
19 continue smoking, but instructing him to eat less
20 fat to lower his cholesterol is not appropriate
21 treatment.

22 No cardiologist I know would prescribe
23 this. This scenario would be similar to what Duke
24 proposes. Instead of halting the killing of
25 marine life they want to give money to projects

1 that decrease sedimentation in the estuary.

2 Perhaps a more appropriate program may
3 be one that actually produces a fishery or
4 breeding ground for the 75-plus species of marine
5 life being entrained.

6 It is important to remember that Duke's
7 monetary contributions to reduce sedimentation or
8 enhance habitat are not that desperately wanted.
9 There are other funding sources available.

10 It is clear that cooperative multi-
11 agency efforts can fund and implement significant
12 watershed enhancement projects. Our community
13 does not need Duke money. Perhaps their
14 contributions could be used for past damage done
15 to the estuary rather than for future damages.

16 In the future Duke may be granted
17 indemnity for past damage inflicted upon the Morro
18 Bay National Estuary, but as of two years ago when
19 a study was conducted and revealed the extent of
20 the damage being done to the estuary, many of us
21 in the community feel that Duke has a moral and
22 legal responsibility to this community and to the
23 State of California to make up for the losses of
24 the past two years, and for the losses occurring
25 now as we speak, until the plant stops using our

1 estuary for cooling.

2 HEARING OFFICER FAY: Okay, --

3 MS. JOHNSON: In summary, --

4 HEARING OFFICER FAY: -- I'm sorry,
5 you've more than exceeded --

6 MS. JOHNSON: Okay.

7 HEARING OFFICER FAY: -- the three
8 minutes. I do want to save time for all your
9 neighbors --

10 MS. JOHNSON: All right, thank you.

11 HEARING OFFICER FAY: Thank you.

12 PRESIDING MEMBER KEESE: Thank you.

13 HEARING OFFICER FAY: Peter Risley.

14 MR. RISLEY: My name's Peter Risley.

15 Honorable Commissioners, the habitat enhancement
16 plan is a red herring. Don't be fooled. The idea
17 of Duke Power participating in habitat enhancement
18 is -- I don't understand it.

19 They are a power company; they run power
20 plants. That's what they should do. And they
21 should do it right.

22 The idea of polluting the environment
23 and fouling the estuary waters is the issue here.
24 They don't want to change that. They want to save
25 money and continue old technology, 1940

1 technology, which was appropriate back then, is no
2 longer appropriate for the people of California
3 today.

4 Dry cooling is the answer. The
5 technology is there. If Duke Power doesn't want
6 to do it, why don't we let another power company
7 do it right. That plant is not the property of
8 Duke Power. It's the property of the great State
9 of California and all the citizens which you
10 represent.

11 I know you're going to do right by the
12 people because your decision will go another 50 or
13 even 100 years. Don't continue polluting that
14 water. It's not good for Morro Bay; it's not good
15 for the state, the environment, and it's not good
16 for Duke Power. Duke Power should get on the
17 right track.

18 Thank you.

19 HEARING OFFICER FAY: Thank you.

20 PRESIDING MEMBER KEESE: Thank you.

21 HEARING OFFICER FAY: Nancy Ferraro.

22 MS. FERRARO: My name is Nancy Ferraro,
23 and I'm a resident of Morro Bay. A few days ago I
24 was preparing a letter to send to Commissioner
25 James Boyd and Commissioner William Keese. But as

1 I prepared it I realized that there were many many
2 people I knew who would like to sign this letter,
3 so I didn't mail it. I took it around and got
4 signatures. And this is the letter. And I have
5 42 signatures on it.

6 And I'll read quickly what it says: As
7 a resident of California I would like to express
8 my opposition to the potential building of a new
9 power plant using once-through cooling on Morro
10 Bay National Estuary. Mitigating measures
11 proposed by Duke Energy would not suffice in the
12 degradation once-through cooling would have on the
13 estuary."

14 "The estuary is a sensitive natural
15 treasure. Fifty years ago when the current plant
16 was built it was not known that the estuary would
17 one day become a rare national asset. In view of
18 the fact that California has lost over 90 percent
19 of its estuaries and wetlands, we now appreciate
20 the fragile nature of this unique ecosystem."

21 "Choosing an alternative site for a
22 power plant would make more sense at this point in
23 time. With so few undeveloped estuaries left in
24 California, and I know I saw three of them go down
25 the tubes when I was living in San Diego County,

1 Buena Vista Lagoon, Agua Hedionda Lagoon and
2 Batiquitos Lagoon, with so few undeveloped left,
3 visitors from across the U.S., Europe and Asia
4 travel here to enjoy the pristine Bay and the
5 area's natural beauty.

6 People from all over the world reap the
7 benefits of Morro Bay National Estuary. If
8 protected, future generations can also experience
9 this rare treasure.

10 Decisions about the estuary should
11 consider all Californians, visitors from other
12 states and countries, as well as generations to
13 come. Please protect the resource of the Morro
14 Bay National Estuary, one of the last remaining
15 coastal estuaries, by choosing an alternative site
16 for a new power plant, or at the least, avoiding
17 the use of once-through cooling at this particular
18 location.

19 Thank you. And I'd like to deliver the
20 letter to you.

21 HEARING OFFICER FAY: Please do.

22 PRESIDING MEMBER KEESE: Thank you.

23 HEARING OFFICER FAY: And while she's
24 coming up, Richard Smith.

25 DR. SMITH: Hi, I'm Richard Smith, often

1 accused of not ever giving credentials. I do have
2 a PhD in behavioral ecology and I've lived
3 literally on the Bay for over 20 years, and
4 observed it daily.

5 I'd like to very quickly touch three
6 issues that have come up. The first would be the
7 wholly disproportionate costs versus benefit
8 issue. The second involves nexus. And the third
9 has to do with the CEQA baseline.

10 In the case of wholly disproportionate
11 costs, I want to remind you of the magnitude of
12 those costs. And Ms. Ferraro just mentioned that
13 over 90 percent of our estuaries are gone in
14 California. So we don't have many left.

15 A consortium of U.S. Fish and Wildlife,
16 NOAA, EPA, National Resource Council, whatever, --
17 and by the way, the data for this is documented
18 and has been sent to the Water Board long ago --
19 those agencies have concluded that 70 percent of
20 marine life is at some stage in their lifecycle
21 dependent upon estuaries, 70 percent.

22 If you look at a map and you take Moss
23 Landing and Morro Bay together, and see that that
24 spans over 30 percent of the California coast.

25 So the decision we're making, we already

1 know we have sick oceans, and they allow very high
2 kill rates, perhaps a third of the larvae produced
3 among these rare entities, it's a big deal.

4 The second comment regards carrying
5 capacity. If the carrying capacity out there, as
6 we've discussed today, is not reached, if the
7 animals are below that carrying capacity, it's
8 hard for me to understand why any more land is
9 going to solve the problem. That there are
10 mortality factors now that are holding that, or
11 may well be holding that below carrying capacity.

12 And so if we don't relieve those
13 mortality factors, and we're here today to talk
14 about one that's 33 percent of the life forms in
15 the Bay, I don't see how getting more land is
16 going to make things any better. So in that
17 regard I don't see a nexus.

18 And I might add that we've sat here
19 today and heard scientists admitting full well,
20 and I've put many hours in trying to find out what
21 is a healthy estuary. Are we at carrying capacity
22 and on and on. No one in the scientific community
23 seems to be able to answer that.

24 But we have documented very experienced
25 observers who live in this community that can tell

1 you all sorts of species that aren't present; all
2 sorts of abundance, for example the crabs. The
3 mud flats used to abound by them, I lived off of
4 them. So there's a lot of long-time evidence we
5 could reach to show that both abundance and
6 diversity was much greater in the past. And given
7 no other scientific evidence we might well want to
8 consider it.

9 And the third one, very quickly, is to
10 remember that we're talking about a reduction in
11 the rate that the Bay fills up and disappears in
12 these comments. That reduction will still occur;
13 and of course, somewhere we're going to find a way
14 to control siltation. We have to.

15 But changes from 200 to 400 years.
16 Consider that what that means is that the impact
17 of withdrawing the water from the Bay in terms of
18 percent mortality will increase over the lifetime
19 of that Bay, to the extent you're dealing from a
20 smaller pool. The proportional impact of the take
21 has to increase.

22 So in terms of CEQA baselines, no, it's
23 my position that since that rate is going to go
24 up, it's not acceptable in that regard.

25 Thank you.

1 HEARING OFFICER FAY: Thank you.

2 PRESIDING MEMBER KEESE: Thank you.

3 HEARING OFFICER FAY: Garry Johnson.

4 MR. JOHNSON: Garry Johnson, a resident
5 of Morro Bay. My background, as I've said before,
6 I'm an electrical engineer with a background in
7 geology. I've been in the space program for a
8 number of years, and I've done a lot of scientific
9 studies.

10 And I'm for the plant. Now the reason
11 why I'm for the plant is that when I first moved
12 here, I only live a couple blocks from here, the
13 plant didn't make our decision, it didn't bother
14 us.

15 Secondly, after this started five years
16 ago, there was a lot of comments made about how
17 this plant is poisoning the community. I've done
18 many studies of plants throughout the United
19 States. I've used my ISO9000 series approach to
20 the plant. I spent many days at the plant
21 studying it from one end to the other. It met all
22 the requirements. I couldn't find anything that I
23 found that was wrong with the plant.

24 And so then I've been listening to the
25 scientists here for two or three years. There was

1 one scientist that said that we know that the
2 entrainment, there are larvae and so forth being
3 intaked into the facility. But we also know that
4 there's nothing that's going to cause extinction
5 of any marine life that's being sucked into the
6 facility.

7 So, and that's been on record by one of
8 the state scientists. I don't recall the person's
9 name. I don't believe he's here today.

10 So, over 50 years they've been sucking
11 water into the facility. Fifty years is a long
12 time. I don't see -- they're saying that it's
13 going to draw a conclusion that we're going to
14 draw marine life to extinction, it would have done
15 it a long time ago, over 50 years.

16 Now, this might not be a right analogy,
17 but I kind of look at a forest with a tree. You
18 cut the tree down in a forest, you're going to
19 lose habitat on that tree. But it's not going to
20 cause 100 percent extinction of anything living in
21 that forest.

22 Now, we look at the Bay with the plant
23 facility here, you can look at it as a tree. Yes,
24 you are taking some marine life, but you're not
25 taking it to extinction.

1 Now, there's other things that bothers
2 me about this estuary. And I think this \$12, to
3 start with, is going to do a lot, analogy, or to
4 understand about what's going on in the estuary
5 for an example.

6 There's a recent study that 20 percent
7 of the E.coli is 20 percent human waste. The
8 other 14 percent is dog waste. And so the other
9 high percentage is from the birds. Now, where's
10 the human waste coming from? That's an important
11 study that we need to do. Is it coming from
12 people living on the boats? Huh? Or is it coming
13 from the Embarcadero? Is it coming from Los Osos
14 septic tanks? Coming from where?

15 So these are the studies that need to be
16 done. So let's don't blame everything on Duke.
17 And I don't think Duke -- is that it? Okay.

18 HEARING OFFICER FAY: And I'm going to
19 have to ask you --

20 MR. JOHNSON: Okay.

21 HEARING OFFICER FAY: -- to wrap up with
22 that thought.

23 MR. JOHNSON: Okay. So, in conclusion,
24 I'm for the facility. I'm a minority here, but
25 I'm not a minority that voted two years ago.

1 HEARING OFFICER FAY: Okay, thank you.

2 MR. JOHNSON: It was a majority.

3 HEARING OFFICER FAY: Maya Andlig,
4 please.

5 PRESIDING MEMBER KEESE: Let me make a
6 comment here before -- I see a few members of the
7 public have slipped out the back door. I would
8 like to make a comment because we do appreciate
9 the public coming here. And even though we're on
10 habitat enhancement today, the public comments
11 have pretty much ranged across the board.

12 I think those who are listening can hear
13 the quandary that obviously we are in. I have
14 heard no one stand up and say they want those old
15 tanks sitting on that hill for the next 50 years.

16 I have heard in previous hearings people
17 say you must take down those tall stacks up there.
18 We don't want those around. I have heard people
19 complain about the emissions out of the current
20 plant. And they'd like to see those lowered.
21 Which, on the other hand, means you need a new
22 plant. Because that's an old plant sitting there.

23 There are things that probably everybody
24 in this room could agree on. I haven't heard
25 anybody say they want that estuary filled in. So

1 we have air issues; we have water issues; we have
2 land issues; we have visibility issues, which
3 cannot all be reconciled together.

4 We can wish -- we have energy issues,
5 just as a matter of fact, but we can go back to
6 before 50 years ago and start with a clean slate
7 and say well, that was wonderful, you know, we
8 wish something had never happened.

9 But as a Committee here, we have to deal
10 with the reality. And we have to deal with all
11 the issues that you're pointing up to us. And,
12 Mr. Boyd and I, I will assure you, are going to
13 try to do that with the conflicts of interest
14 here, with the sometimes mutually exclusive issues
15 that are raised. You can't have one if you
16 don't -- if you're going to have the other.

17 So before you leave, I just do want to
18 say, we do appreciate it. We're here to hear it.
19 And we welcome it. And we have three or four more
20 that we're going to hear from.

21 HEARING OFFICER FAY: Okay, is Maya
22 Andlig here? She's not, okay.

23 David Nelson.

24 MR. NELSON: Hi, my name's David Nelson.
25 I'm a citizen of Morro Bay. I've been in the area

1 for over 25 years. And over that 25 years, you
2 know, the power plant has been an issue to me.

3 What we have here, and I'll try to stay
4 to habitat enhancement, is you know, if I was a
5 business, a big business, I wouldn't go out and
6 hire Anderson consulting right now to draw me a
7 business plan.

8 What we have here, nothing personal to
9 Michael Thomas, if he's here, we have a Water
10 Board that has not done their job in 30 years, not
11 done their job. We heard their attorney give us
12 excuses and reasons and she was bewildered why
13 there's never been a 316(b) study done in the
14 Morro Estuary.

15 I heard Commissioner Fay assure us that
16 we have a five-year license to renew with the
17 Water Board, and that we could input and get the
18 best technology. I'm sorry, it may have been Mr.
19 Keese. But, you know, this hasn't happened in 30
20 years.

21 So, to me it's like we've allowed the
22 Water Board, who hasn't done their job in 30
23 years, come here, design this program, and
24 introduce it as the solution to the problem. When
25 we all know that the solution to the problem we

1 heard Mr. Barta earlier going, well, if there's
2 technology that, you know, would be better than
3 this intake and outfall technology, that Duke will
4 use it.

5 Well, the technology exists. I live
6 here. I would look at the cooling towers in our
7 town, and I'll tell you, from my standpoint I'd
8 rather have my estuary than look at the cooling
9 towers. Because people in this town have been
10 sold a bill of goods that this is going to be a
11 pretty little plant that they're going to put over
12 here by the oil tanks.

13 Well, I've seen Moss Landing. It's not
14 a pretty little plant. It's a hideous thing.
15 It's not even covered. At least the plant that we
16 have here now is covered. And we don't see the
17 working mechanism of the power plant.

18 So, to me we're abusing this water.
19 We've giving Duke an unfair advantage in the
20 energy market because of the cold water. One of
21 the Duke officials who are no longer employed
22 here, used an enormous figure for energy
23 efficiency boost from the cold water. Because
24 this water is cold. It definitely does the job
25 really well and really efficient.

1 But, you know, we have to look at this,
2 and we have to think about what the worth is. I
3 heard on page 9 of the discharge permit, I looked
4 it over, and when I came to page 9, wholly
5 disproportionate cost.

6 Now, this is just a statement. I mean,
7 what is the cost I mean what is the profit? We
8 don't know how much money they make, so how can we
9 say that it's wholly disproportionate to ask them
10 to spend \$30- or \$40-million over a 50-year period
11 to save an estuary?

12 We know the damage they're doing to the
13 estuary. Mark Seedall, another guy who worked for
14 Duke early on, came to a City Council meeting and
15 said, Duke will not be responsible historically
16 for what's gone on in this Bay. And they can't be
17 because there's no studies. It's because our
18 Water Board didn't do their job.

19 Now we're depending on that same Water
20 Board to give us this plan. And Duke, you know,
21 these are very talented people here. They know
22 the rules. They know the laws. But now they want
23 to hold us to the letter of the law, whereas for
24 the last 30 years it's been ignored.

25 And I'm just asking you guys, I don't

1 know how you do it. You have a quandary, I
2 understand. And I have great respect for the job
3 that you guys are doing, but what do you do? How
4 do you make up for that 30 years of lost science
5 and lost species?

6 We had Dr. Stephens testify that many
7 things that should be in this Bay is not in this
8 Bay. So you got to think about that. And I don't
9 know how you work this into this situation, except
10 where the Warren Alquist law, first page that says
11 we have to protect our environment.

12 Thank you.

13 HEARING OFFICER FAY: Thank you, Mr.
14 Nelson.

15 (Applause.)

16 HEARING OFFICER FAY: Joan Carter. This
17 is our last comment.

18 MS. CARTER: This has already been said,
19 but on election eve I'm compelled to repeat it.
20 Duke and the City Council are just playing
21 politics in the current election campaign with
22 this project that could pose serious health risks
23 to citizens and could seriously deplete estuary
24 life, which has been demonstrated to be factual.

25 What is not factual is the campaigning

1 that has stated that the citizens voted to approve
2 this plant. The citizens voted that, quote, "If
3 the project complied with all ordinances,
4 regulations, and laws that they wanted the plant.
5 And it's been concluded that it hasn't.

6 So, voter support cannot be claimed.

7 PRESIDING MEMBER KEESE: Thank you very
8 much.

9 HEARING OFFICER FAY: Thank you.
10 Actually, Mr. Pryor had two more. All right,
11 first we'll take Todd Barnes. Then Linda Merrill,
12 and that will conclude public comments for this
13 evening. Mr. Barnes.

14 MR. BARNES: Todd Barnes, a resident of
15 Los Osos for 14 years. I didn't prepare any
16 comments, but I came here to support CAPE and the
17 idea that the estuary is a sacred spiritual
18 natural environment that we need to be very
19 careful about, and not destroy.

20 And I feel like there are interests,
21 there are competing interests here. I know you
22 guys have to deal with competing interests, and
23 I'm not sure what your mandate is. But, you know,
24 energy in California has been an issue. It's been
25 a big issue. It's an issue in the governor's

1 race, of course.

2 And from what I know, there is a big
3 energy need in this state, obviously. There's 34
4 million people in California or thereabouts. But
5 also I've heard that there were a lot of economic
6 aspects to what happened a year or two ago, and
7 the fact that we had an energy crisis and we had
8 brownouts and we had not enough energy, and we
9 need to build a bunch more plants and stuff.

10 And from what I've heard, that's now
11 changed. That all of a sudden things are
12 different. We don't need quite that much energy.
13 They're not going to build as many plants in
14 different places. And that some companies and
15 some people made tremendous profits, maybe excess
16 profits.

17 I'll wait till you guys are done there.

18 From my own knowledge that there's been
19 a change in the idea that we're energy deficient
20 in this state and that there was some economic and
21 there was some manipulation of the facts and
22 things that went on.

23 And so one of my points is that here are
24 competing interests that you have to deal with,
25 but I feel like, as in most cases, the powerful

1 people with the money and the ability to hire
2 consultants and to get people's attention tend to
3 have a larger voice.

4 And I think you've seen, through all the
5 people speaking here tonight, that there are many
6 many people in this area that want to have their
7 voice heard. They don't have -- I don't have a
8 really economic interest in Duke Energy, you know,
9 or the plant, except that I want to live in a
10 place that's, you know, beautiful, clean and
11 environmentally sound and sustainable.

12 And I don't feel that it is sustainable
13 with the plant taking that much life out of the
14 Bay on a regular basis. So I would ask you to
15 take the long-term look at the whole situation,
16 and realize, as with many many things in this
17 country, it comes down to economics.

18 And I would guess, and I could be wrong,
19 that most of the people in Morro Bay and Los
20 Osos -- and I live in Los Osos, so I had no say in
21 what I feel was a bogus advisory thing that they
22 did. There's 14,000 people at least in Los Osos;
23 none of them have any say. And, you know, we
24 breathe the air, and we, you know, I live close to
25 the estuary, so I -- we had no say in it. The

1 people of Morro Bay did. And I feel like that was
2 very, you know, not very clear and not very valid.

3 But I feel like if most people had a
4 decision to maybe keep their lights off for half
5 an hour, or, you know, use less energy and not
6 have this plant here at all, I mean that would be
7 my, you know, -- many people, but Duke says they
8 won't build it if they can't do the -- you know,
9 if they have to do the dry cooling.

10 I don't believe that. And I say, fine.
11 I don't think they're going to go out of business,
12 you know, if they have to do that.

13 So, either way, I'm just asking you to
14 look at the economic interests. And I think the
15 word greed has come up in this, you know, people's
16 minds a lot lately, with Enron and the different
17 corporations making money.

18 Corporations do have the right to make
19 money, but I believe there's a public charter in
20 that they have not lived up to that charter. I'm
21 not sure if Duke has or not, but many many
22 corporations haven't. And they have an axe to
23 grind. The people here that don't have an axe to
24 grind, that just live here and want to have a
25 beautiful place to live, they don't have an

1 economic interest.

2 But they have an interest; and I think
3 that interest needs to be protected. And I think
4 that's your job. Thank you.

5 HEARING OFFICER FAY: Thank you. Linda
6 Merrill.

7 MS. MERRILL: Good evening. I know you
8 all have been here since 9:00 this morning. I did
9 want to say -- my name is Linda Merrill; I'm
10 retired; and I've lived here for 15 years. I was
11 born in the Valley, Porterville, California. And
12 I came here, I've been coming here for years
13 before moving here.

14 Thank you all for being here. Morro Bay
15 citizens appreciate your help and concern
16 regarding this immense project. We rely on
17 experts, this corporation and the City to
18 guarantee that we and the creatures of the Bay
19 have the best environment possible to live in.

20 And we are relying on you all to sort
21 this all out. I know that's a difficult task.
22 However, I think it's important that the people
23 who spoke here, this is the end of your session.
24 You all must be very tired. And I appreciate you
25 continuing to listen to the people who are here.

1 I know that ADP Video is taping this,
2 and I hope that it's going to be played later. Is
3 that tomorrow? Tonight? Tonight.

4 I'm sorry that this was not live. I
5 know that we have at least two facilities that
6 could have accommodated this live. And I think
7 the citizens of Morro Bay would like to have seen
8 this today. I think it's real important.

9 The speakers here tonight have told you
10 from their heart their concerns. And I think the
11 people at home would like to be seeing this. And
12 maybe more people would have come if this had been
13 shown live.

14 I'll be here tomorrow. I would like to
15 ask if possible if you could get it in a different
16 facility. I don't know, maybe it's too late.

17 PRESIDING MEMBER KEESE: We tried.

18 HEARING OFFICER FAY: We tried to use --

19 MS. MERRILL: Did you?

20 HEARING OFFICER FAY: The City
21 facilities were not available.

22 MS. MERRILL: All right, thank you.
23 And, since tomorrow is election day and this is an
24 important issue, that would have made it even more
25 pertinent that we were able to find a facility. I

1 don't understand it.

2 So, anyway, thank you all for being
3 here.

4 PRESIDING MEMBER KEESE: Thank you all
5 very much. And thank you all for coming.

6 Commissioner Boyd, did you have any
7 final comment?

8 COMMISSIONER BOYD: No, I just wanted
9 to, I think, amplify even though it's dangerous
10 ground to tread into, amplify a little bit of what
11 you said about the dilemma that we face. And
12 perhaps to address one or two of the issues that
13 some of the people have put before us.

14 With regard to the gentleman's comment
15 about the energy situation in California, what
16 California has done. The citizens, such as
17 yourself, have done a marvelous job the past
18 couple of years in conserving electricity and
19 helping alleviate the magnitude of the problem.

20 I think you know the government of
21 California has pushed real hard to, as much as we
22 possibly can, come up with alternatives to the
23 present approaches to electricity.

24 A gentleman stated that not as many
25 power plants are being built now. That's a

1 product of the mess that was created, the
2 financial cave-in of the industry, as much as it
3 is a diminishment of the need for electricity. So
4 we still face that dilemma in our state. And the
5 state just refuses to stop growing, which
6 precipitates the problem that we have to address.

7 As a fourth generation Californian I
8 appreciate the beauty of this state, and the issue
9 we have to deal with, with regard to its natural
10 resources. I've worked in government for more
11 decades than I'm willing to admit; most of those
12 in the environmental arena. So, I have a great
13 desire to protect our environment.

14 But, there are issues that we all face
15 in this community. In theory we have a company
16 here that says they wouldn't build a plant if it
17 didn't use dry cooling. Well, some of you said
18 that's just fine, we don't want a plant.

19 However, as I understand it, then the
20 old once-through cooling plant just continues to
21 crank on. So I don't -- if that's -- that's a
22 dilemma that we have to lay on the table in front
23 of us and examine

24 So I just want to introduce you to the
25 magnitude of the issue that we're all wrestling

1 with here. And to thank you all for your input,
2 we very much appreciate it.

3 PRESIDING MEMBER KEESE: Thank you.

4 HEARING OFFICER FAY: Anything further?

5 PRESIDING MEMBER KEESE: No.

6 HEARING OFFICER FAY: All right. Thank
7 you all for coming. We will resume taking
8 evidence tomorrow morning at 9:00 a.m.

9 (Whereupon, at 6:30 p.m., the hearing
10 was adjourned, to reconvene at 9:00
11 a.m., Tuesday, November 5, 2002, at this
12 same location.)

13 --o0o--

CERTIFICATE OF REPORTER

I, JAMES RAMOS, an Electronic Reporter,
do hereby certify that I am a disinterested person
herein; that I recorded the foregoing California
Energy Commission Hearing; that it was thereafter
transcribed into typewriting.

I further certify that I am not of
counsel or attorney for any of the parties to said
hearing, nor in any way interested in outcome of
said hearing.

IN WITNESS WHEREOF, I have hereunto set
my hand this 20th day of November, 2002.

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